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HOSPITAL SERVICES in the U.S.S.R.

Leningrad

★
MOSCOW

Tbilisi

• Rustavi
Sumgait •

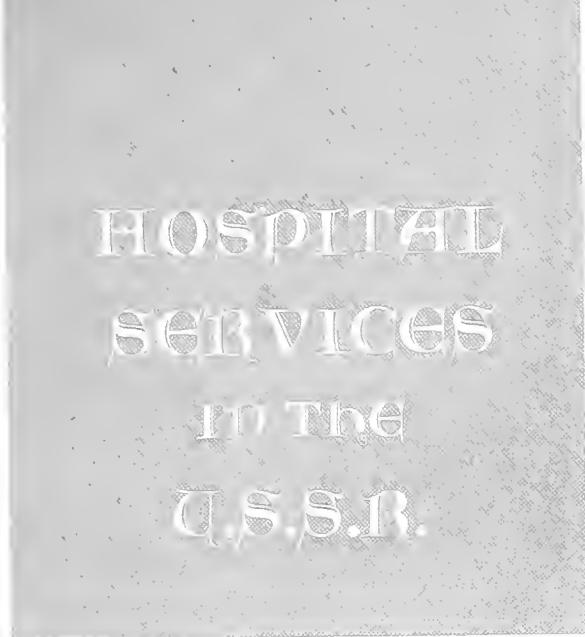
Baku

Tashkent



report of
the U.S. delegation on
hospital systems planning

June 26 - July 16, 1965



HOSPITALIZED
services
to the
U.S.S.R.

report of
the U.S. delegation on
hospital systems planning

June 26 - July 16, 1965

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service

■ Division of Hospital and Medical Facilities, Washington, D.C. 20201

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William H. Stewart, M.D.
The Surgeon General
Public Health Service

Dear Dr. Stewart:

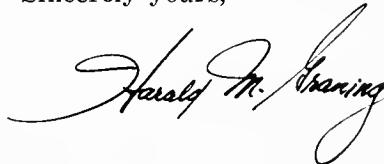
It is with the greatest of pleasure that I transmit to you on behalf of our delegation a report covering observations of the hospital planning system of the U.S.S.R. and some mention of the interrelationships between medical care and health services education in that country.

All of us benefitted profoundly from the experience and hope we were able to share items concerning U.S. hospital practice that will prove helpful to those we met.

The delegation is particularly indebted to Mrs. Marjorie M. Lawson and Miss Elaine Bechtel, who are the Director and Assistant Editor, respectively, of the Special Reports Division of the American Hospital Association. Notes from individual members of the delegation were used by them in the development of a report which is both readable and informative. The points of view expressed reflect the consensus of the delegation.

We concur in thinking the trip was most worthwhile and hope that there will be frequent future exchanges to the mutual benefit of both nations.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Harald M. Graning".

Harald M. Graning, M.D.
Chairman

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preface

IN 1955, as part of the plan to reduce the tensions of the cold war, the Soviet Union and the United States agreed to exchange cultural missions charged with acquiring information on a variety of activities in the two countries. Medicine, medical education, and medical research were included in the specific areas to be covered.

The first cultural mission in medicine consisted of a visit by a Soviet group interested in poliomyelitis control, which came to the United States in 1956, followed in the same year by a United States mission on microbiology and epidemiology that visited a number of Soviet cities and institutions. In 1957, a United States delegation on public health problems and practice toured nine cities in five Soviet Republics during a 26-day visit in August and September, under the chairmanship of Thomas Parran, M.D., former Surgeon General of the Public Health Service. A Soviet reciprocal delegation visited the United States in October and November. There have been several subsequent exchanges on specific disease problems and educational or research subjects. One of these was a visit in October and November 1963 by a U.S. delegation surveying medical education in the Soviet Union.

In early 1965, the Public Health Service, Office of International Health, and the State Department decided that a delegation on hospital systems planning should visit the U.S.S.R. in exchange for a Soviet hospital delegation that had visited the United States during 1963. Assistant Surgeon General Harald M. Graning, M.D., Chief of the Division of Hospital and Medical Facilities, Public Health Service, was appointed chairman of

the delegation selected for this 1965 mission. Other members were: Philip D. Bonnet, M.D., administrator of the University Hospital, Boston University Medical Center, Boston; Edwin L. Crosby, M.D., executive vice president of the American Hospital Association, Chicago; Jack Masur, M.D., director of the Clinical Center, National Institutes of Health, Bethesda, Md.; and Russell A. Nelson, M.D., president of The Johns Hopkins Hospital, Baltimore.

The delegation's objective was to study hospital planning and the hospital system of the U.S.S.R., and to observe the relationships of medical care, of health services education, and of research to hospital operation. There was to be no attempt to study the Soviet system of mental hospital care or to study in any detail the system of sanatorium and rest home care.

The delegation assembled in Stockholm on June 26, 1965, for the flight to Moscow via Copenhagen. After a busy three weeks in the Soviet Union, four members of the delegation left Moscow for London at noon on July 16; Dr. Graning left on July 17 for West Germany.

Itinerary

After consultation with the U.S.S.R. Ministry of Health in Moscow regarding suggestions made by the Public Health Service and the State Department, it was decided that the delegation would visit five major cities in four different republics of the Soviet Union. Conferences with high-level officials of health departments and hospitals, and tours of general hospitals, maternity and

pediatric hospitals, polyclinics, and special institutes were to be arranged. In addition, the delegation requested the opportunity to visit and study one or more of the U.S.S.R.'s "new cities," and two such cities were accordingly included in the itinerary.

During its three-week tour the delegation traveled about 6000 miles by air within the Soviet Union and visited seven cities. In the order visited, these were: Moscow, in the Russian Socialist Federated Soviet Republic; Tblisi and the "new city" of Rustavi, in the Republic of Georgia; Tashkent, in the Republic of Uzbek; Baku and the "new city" of Sumgait, in the Republic of Azerbaijan; and Leningrad, in the R.S.F.S.R. From Leningrad, the group returned to Moscow. These cities had all been visited by previous delegations. It had been hoped that this delegation might go to at least one or two cities or regions not previously seen, but this could not be arranged. The delegation's schedule follows:

June 26—Arrive Moscow.

July 1—Arrive Tblisi. (Tblisi visit included Rustavi.)

July 4—Arrive Tashkent.

July 7—Arrive Baku. (Baku visit included Sumgait.)

July 10—Arrive Leningrad.

July 14—Return to Moscow.

July 16—Depart Moscow.

Nineteen hospitals were visited: eight general adult hospitals, five medical research institutes, two maternity hospitals, two tuberculosis hospitals, one children's hospital,

and one rural district or *uchastok* hospital. In addition, the delegation visited six polyclinics, saw one central emergency service for a large city, and had ten major conferences with high-level officials, five at the Ministry of Health in Moscow and five at the Ministries of Health of the several Republics.

The Soviet Ministry of Health assigned two individuals to accompany the delegation throughout its tour. They were Mrs. Marina Modestova, Protocol Division, U.S.S.R. Ministry of Health, and Dr. Viktor Ravikovich, Chief Physician (medical director and administrator) of Moscow City Hospital No. 32. Since no member of the delegation spoke Russian, Mrs. Modestova's services were invaluable and were deeply appreciated. Dr. Ravikovich spoke no English, but it was possible for members of the delegation to communicate with him directly in a rather limited German vocabulary. He was most helpful in explaining the Soviet system of hospital and medical administration, which is fundamentally different from that in the United States.

Within limitations imposed by the shortness of the visit, the delegation was shown everything it asked to see. Time for making arrangements was also limited, and in some places there had been little or no advance notice of the delegation's visit. In spite of this fact, and of the fact that Soviet health authorities are receiving more and more similar delegations from various countries, especially in Moscow and Leningrad, the spirit of cordiality and cooperation was marked. Universal friendliness, dedication, and eagerness to be helpful were encountered among hospital and health care personnel everywhere.

I.

SUMMARY AND CONCLUSIONS

DURING the busy three-week tour and the days of reflection that followed, the delegation made the following general observations and agreed upon certain conclusions:

First, with regard to the Soviet scene: The Soviet people whom the delegation met were extremely friendly. The ministries were very cooperative, and all hospital physicians were eager to show what the delegation wanted to see and were evidently proud of their work. The delegation had complete freedom to see what it wished in individual hospitals, and the members were able to move around freely in Soviet cities, although usually accompanied by their guides.

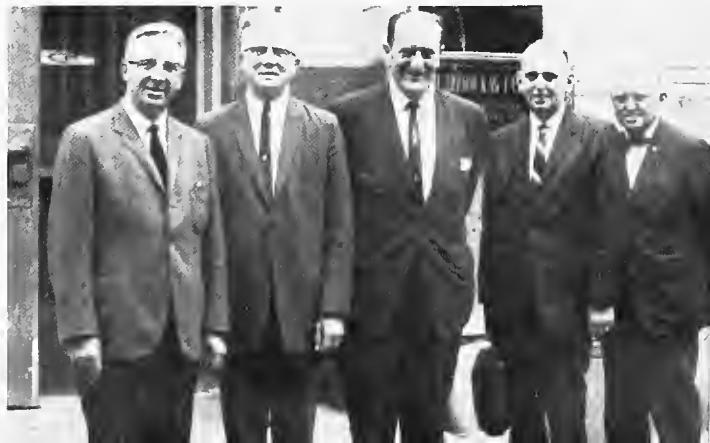
Members of the delegation had been admonished to remember that the Soviet Union is "different" and to preserve their sense of humor during the trip. This was good advice because travel and living in the Soviet Union are indeed different and occasionally difficult. The delegation was impressed by some contrasts, both in daily living and in the health services. In general, Soviet cities resemble ours in that some are attractive and others not: many buildings are poorly maintained; hotels are gaudy, and have slow and inadequate service; buses, streetcars, taxis, and automobiles are shabby; and many of the people are poorly dressed and appear preoccupied and tired. In contrast to all this, the Bolshoi Theater in Moscow is sparkling and exciting, and no foreigner can fail to be impressed by the amazingly beautiful, al-

most magnificent subways of Moscow and Leningrad.

The American visitor is inevitably impressed with the fact that all the people work, and work hard; a Soviet citizen is either studying, working, on sick leave, on vacation, or disabled and living on a pension. There is no general welfare relief. It is clearly and visibly a one-class society of workers.

Second, with regard to the health care system: Health services are all free, all government-operated, and all provided by salaried personnel who are highly organized, in much the same way as in military medicine in the United States. There is little choice for either the patients or the professional workers. The delegation was told that physician-patient assignments may be changed, but that this is difficult and is seldom done. The medical services and institutions exist under quotas and so-called "normatives" established

Members of the U.S. Delegation on Health Systems Planning at the U.S.S.R. Ministry of Health on the first day of their mission. From l. to r.: Dr. Russell A. Nelson, Dr. Harald Graning (chairman), Dr. Jack Masur, Dr. Philip D. Bonnet, and Dr. Edwin L. Crosby.



by the government, and are quite standardized, with little opportunity for innovation or experiment. It was the delegation's impression that medicine ranks below engineering and the natural sciences in the hierarchy of Soviet affairs, but there is nevertheless a heavy investment in medical care and medical personnel, especially physicians. In medicine, as elsewhere in Soviet life, there is much evidence of emphasis on planning for and achieving goals.

Third, with regard to the general plan of the mission: The visit was too short, in relation to the amount of travel. The institutions visited were on what has become almost a regular tourist route for similar delegations. If the members were to undertake another such mission, they would concentrate on fewer institutions that had not been visited previously by other United States delegations and would remain in each for a longer period of time.

Furthermore, the language problem was found to be serious, especially in the translation of professional and technical terms. Repeatedly it was evident that such terms, though translated correctly, had different meanings to the Soviet hosts than to their American guests, and the necessity of indirect communication through the interpreter made it difficult to clarify these differences. A major recommendation of the delegation, based on its experience, is that at least one member of every future U.S. delegation, preferably a professionally trained person, be able to speak Russian with reasonable ease.

The mission was very interesting and rewarding to the members of the delegation who recommend that, in the near future, special missions be undertaken to study and more closely observe nursing and paramedical education, the process of "dispensarization," the quality of medical care, and services for mental illness.

EXCELLENT FEATURES

The following features of the Soviet health care system appeared to be excellent:

1. **The complete availability of health care to all the people.**
2. **The commitment to a high degree of utilization of health care facilities.**
3. **The emphasis on planning, setting of goals, and evaluation.**
4. **The high ratio of hospital beds, physicians, and paramedical workers per 1000 population; and the high rate of hospital admissions.**
5. **The system of professional education for the health services, particularly the provision for progression from paramedical to medical education.**
6. **The system of continuing education of physicians.**
7. **The primacy given to the role of the physician in the direction and administration of health services, institutions, and education.**
8. **The assignment to the polyclinic-based *uchastok* physician of the basic responsibility for providing health services.**
9. **The emphasis on prevention, early detection, and aggressive follow-up of certain diseases.**
10. **The work of the midwife, the *feldscher*, and the emergency services.**

UNDESIRABLE FEATURES

The following features of the Soviet system are no less conspicuous, but appeared to be undesirable:

1. The absence of choice, of freedom to change, and of provisions to make innovations in the system.
2. The inferior quality of buildings, equipment, maintenance, and sanitation.
3. The drab and depressing environment in which health services are rendered.
4. Inefficiency in the utilization of hospital beds—the long hospital stays and use of the hospital bed when outpatient care would be adequate.
5. The fractionation of medical institutions into specialties, so that the family must use several institutions for care—one for babies, another for adults, another for maternity care, etc.
6. The separation of outpatient departments from hospitals, with attendant separation of staffs.
7. The limited development of psychiatric services in the polyclinics and hospitals.
8. The relative lack of development of medical science in hospitals and in medical practice, evidenced by the limited use of clinical laboratory procedures.
9. The overemphasis on physical medicine and special forms of hydrotherapy.
10. The assignment to physicians of routine clerical duties that could be performed by other personnel.

II.

RELATIONSHIP OF GOVERNMENT TO HEALTH CARE

HISTORICAL BACKGROUND

THE system of Soviet health services, based on the principle that the health of the people is the responsibility of the government, was established after the 1917 socialist revolution. Thus the system is less than a half century old. During much of this period the Soviet nation was either at war or recovering from war. More than 20,000,000 people were killed or wounded during World War II, and there was immense devastation of villages, towns, and cities, especially in the European West where the greatest progress had been made between World Wars.

Since the end of World War II, not only the facilities of the health care system but also schools, homes, industries, and public buildings of all kinds have had to be rebuilt, and the system itself to be extended over the largest land area of any nation in the world. Concurrent with this effort have been the heavy military expenditures associated with the cold war.

The base on which the Soviet health system was built is another important consideration. Under the czarist regime, Russian medicine had reached a high level but was available only in the centers of population, and to

the very few. The Russia of 1914 had only 23,000 graduate physicians, according to the Soviet Ministry of Health. Only a dedicated few of these were to be found scattered through smaller towns and villages outside of the larger population centers. There were only about 25,000 hospital beds for the entire population at that time.

Today, there are 523,000 physicians in the 15 Republics of the U.S.S.R., and there are 2.1 million hospital beds distributed throughout both urban and rural areas (including about 196,000 mental beds but not including 330,000 sanatorium beds for "convalescent care").

PHILOSOPHY AND ORGANIZATION

Four key concepts are reflected in the Soviet health system:

1. **Health care services are available to all and free to all.** (The only exception is that a nominal charge is made for most medicines, other than those administered in the hospital, and for appliances such as eyeglasses and dental prostheses.)

2. **Health care is integrated through centralized planning and direction.**
3. **The primary objective of the health care system is prevention of illness and promotion of health.**
4. **The state provides for the education of all health personnel, both medical and paramedical, and employs all personnel in the health care system.**

To understand the Soviet system of making health care available to all the people of this vast nation, which covers one-sixth of the Earth's surface and occupies three times the land area of the United States, it is necessary to understand the U.S.S.R. political organization.

The Union of Soviet Socialist Republics is made up of 15 Union Republics. The Russian Soviet Federated Socialist Republic is by far the largest of the Republics, both in area (it takes in all of European Russia and stretches across Siberia to the Pacific Ocean) and in population. The other 14 Union Republics comprise areas populated by various ethnic groups; each is named for the predominant ethnic group within its borders. Each Union Republic has its own majority culture, traditions, and language, plus some minority group cultures, but overlying all of these are the Russian language and cultural pattern, first introduced by the Czars and now perpetuated by the Soviet political pattern.

Within the 15 Union Republics there are in addition 14 so-called Autonomous Soviet Socialist Republics, made up of minority racial or ethnic groups large enough to have been permitted some cultural autonomy and direct political representation in the Supreme Soviet of the U.S.S.R. The Supreme Soviet is composed of two chambers, the Soviet of the Union and the Soviet of Nationalities. The former is based on population and has one elected deputy for every 300,000 persons; members of the latter are chosen on a re-

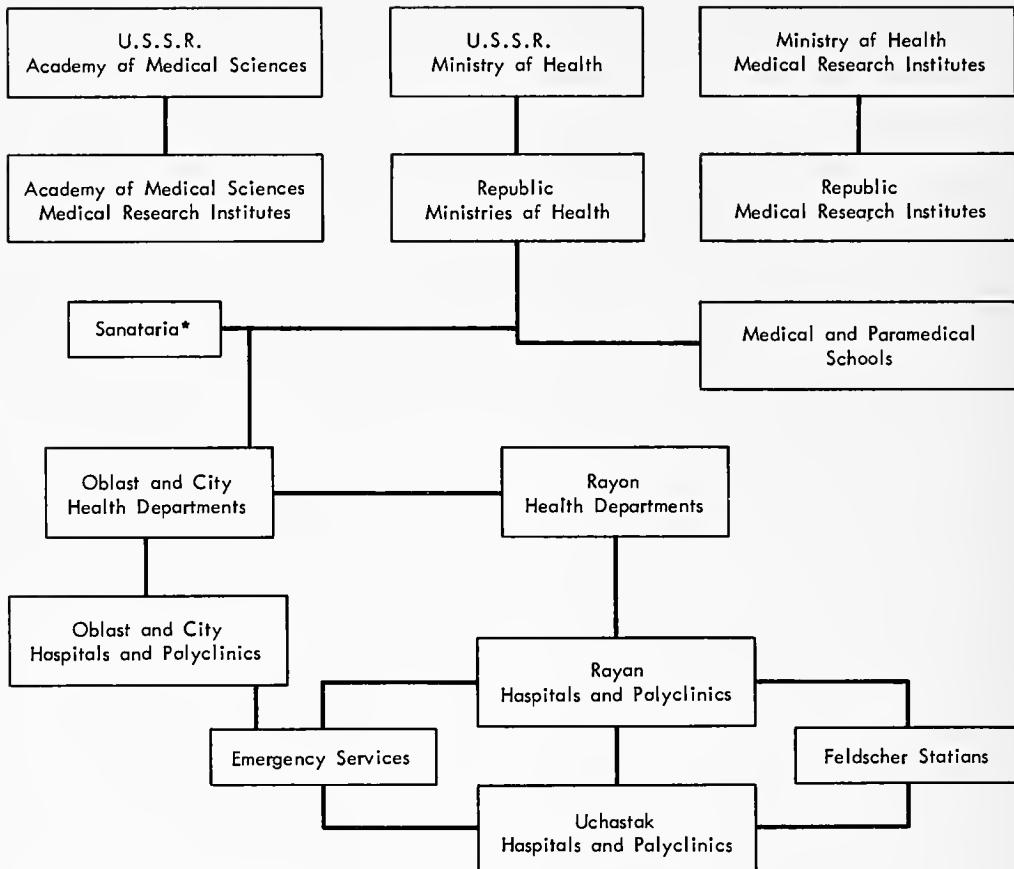
gional basis, regardless of population, to represent ethnic groups.

The executive branch of the central Soviet government is the U.S.S.R. Council of Ministers, appointed by the Supreme Soviet; its chairman is the premier of the U.S.S.R. The Council of Ministers plans, directs, and supervises general policy and its implementation throughout the Soviet Union. One of its members is the Minister of Health, who, under the direction of the Council, is ultimately responsible for all the medical and health activities of the 15 Union Republics.

The Soviet system is characterized by a high degree of centralization of planning and direction at the national level, and by decentralization of execution and implementation at the four lower levels of government, each of which has a structure patterned after the central structure of the U.S.S.R. These lower levels are:

1. **The Republic;**
2. **The *oblast*, a division (or province) of the Republic;**
3. **The *rayon*, a subdivision of the *oblast*, having a population of about 40,000; and**
4. **The *uchastok*, or local district, the smallest administrative unit, having typically a population of about 4000 persons. (There are thus about 10 *uchastoks* to a rayon.)**

The system of health services, which follows the government structure, is strongly regionalized. (See fig. 1.) Each Republic has a Ministry of Health; each oblast has a health department, attached to the office of the mayor, and each rayon—which may be a subdivision of a large city, may encompass a smaller city, or may comprise a cluster of several small villages, one or more collective farms, or a large rural area—also has a health department. Local activities in the uchastok are controlled by the rayon, and each level in turn is subject to review and



*Except sanatoria of trade unions.

Figure 1. Structure of the Health Services in the U.S.S.R.

control by the level above it. The Republics are responsible for actual provision of health care to their populations, but the Supreme Soviet and the U.S.S.R. Council of Ministers have the ultimate responsibility for all health services.

The importance assigned to health in the Soviet system is indicated by the fact that it has a separate ministry. Most western countries, including our own, lump health with public welfare or education or both. The Soviet concern for the health of the people derives from the Communist philosophy that the worker is, in Lenin's words, a "fund of gold" for the country. The workers, the children who are the future workers, and the

women who are or will become the mothers of the future workers, are of the highest value to the state.

THE MINISTRY OF HEALTH

Every aspect of U.S.S.R. health care is within the purview of government. The national Ministry of Health plans the total health program including manpower, facilities, and supplies. It is responsible for epidemiological, sanitary, and quarantine services; international health relationships; development of the pharmaceutical and medi-

cal equipment and supply industries; and supervision of the Ministries of Health of the Republics, which implement the policies of the national Ministry. The national Ministry also includes the Academy of Medical Sciences, and through the Academy and the Republic Ministries, has indirect responsibility for all medical research and direct responsibility for 15 research institutes.

The chief of the Department of Curative and Preventive Medicine, who is also Deputy Minister of Health, outlined the organization of the Ministry of Health and explained their responsibilities as follows:

1. *Department of Curative and Preventive Medicine.* Responsible for all medical treatment and all prophylactic measures for adults, and for all adult hospitals, adult polyclinics, and clinical research institutes of the Ministry of Health.
2. *Department of Medical Care and Prophylaxis for Mothers and Children.* Responsible for maternity homes, children's hospitals, women's consultation services, nurseries (*creches*), and orphanages. This was formerly a division of the Department of Curative and Preventive Medicine, but in 1962 was established as a separate department.
3. *Central Sanitary-Epidemiologic Department.* Responsible for environmental health practices and services.
4. *Department of Planning and Finance.* Responsible for hospital planning, standards, and finances.
5. *Department of Medical Personnel and Higher Education.* Responsible for medical and paramedical schools and for graduate and post-graduate education of physicians.
6. *Department of Capital Construction.* Responsible for design, construction, and renovation of facilities.
7. *Department of Foreign Affairs.* Responsible for international aspects of health and participation in international health programs.
8. *Department of Chemical and Pharmaceutical Industries.* Responsible for production and approval of all drugs, including antibiotics. (The pharmaceutical industry is under the control of the Ministry, and its chief inspector has authority to close a pharmaceutical plant if its products do not meet quality standards.)
9. *Department of Medical Equipment and Technical Apparatus.* Responsible for design and production of medical equipment, devices, etc.
10. *Department of Supplies.* Responsible for supplying all medical and hospital facilities in the Soviet Union with medical equipment, medications, mobile equipment, etc.
11. *Department of Biological Products.* Responsible for production of vaccines, sera, and other biological and immunological products.

Many of these departments have their own research institutes. For example, the Department of Capital Construction has an Institute for Design of Medical Establishments. However, most research functions are carried on by institutes under the Academy of Medical Sciences, which study broad theoretical problems; by institutes of the Ministry itself, which study specific diseases; and by the research institutes of the Republic Ministries of Health, which emphasize special local health problems.

The Academy of Medical Sciences is actually a part of the Ministry of Health, and

its funds are allocated by the Ministry. The Academy was established near the end of World War II, and is entirely separate from the much older and better known Academy of Sciences, which was the model for its organizational structure.

HEALTH SYSTEMS PLANNING

The Soviet health systems planning process was explained by the chief and deputy chief of the Department of Planning and Finance in the U.S.S.R. Ministry of Health. The planning process begins at the level of the smallest institution in the system, the uchastok (local district) hospital. The uchastok hospital forwards its requirements to the rayon hospital, the central hospital of its area, which conveys them to the rayon health departments. This in turn transmits the requirements for its entire areas to the oblast health department, which then forwards the requirements for the whole region or province to the Republic Ministry of Health.

Requirements for the whole Republic are submitted to the Gosplan* of the Republic for review, and then to the Republic Council of Ministers. Finally plans go to the Gosplan of the U.S.S.R. and the U.S.S.R. Council of Ministers. Officials of the U.S.S.R. Ministry of Health participate in the discussions with Gosplan on a consultative basis. Planning is based on well-established ratios or "normatives."

The chief of the Department of Planning and Finance told the delegation that there is little tendency for requirements to be cut as they move upward through successive levels, and that, on the contrary, additions are likely to be made to the original

*Gosplan is the central agency of government that is responsible for all planning and allocation of resources under the Soviet system—for industry, agriculture, housing, and education, etc., as well as health. Many of the functions are similar to those of the U.S. Bureau of the Budget.

requests in order to carry out top-level policy more fully. The acceptance of the final health recommendations by Gosplan and the Council of Ministers depends upon the priorities of health needs relative to all other needs and upon the total budgetary situation. Allocation of funds to the various Republic Ministries of Health permits flexibility in the utilization of the funds within the health category. The Republic may add to the amount it receives from the national budget, and it may also receive grants from trade unions or industry, and donations in money or in kind, that increase its total budget for health services.

The Republic Ministries of Health thus become responsible for planning of facilities and services up to the budgetary limits, in accordance with the "normatives" and standards imposed at the national level. Republic-level planning includes all health facilities except those connected with institutes of the Academy of Medical Sciences and a few that are directly under the U.S.S.R. Ministry of Health, and it also includes education of all medical and paramedical personnel. The Soviet Ministry supervises the operation and curricula of the medical and paramedical schools that are conducted by the several Republics. It also designates the number of students to be admitted each year to all medical schools, and the number to be admitted from each Republic, according to the need for new doctors.

There is, however, no central authority to equalize the numbers or ratios of physicians among the Republics, and their distribution is quite uneven. Thus the Republic of Georgia has 33 physicians per 10,000 population, said to be the highest ratio in the world, whereas in the Republic of Uzbekistan the ratio is about 15 per 10,000. (Republics that are deficient in physicians may request other Republics that have an excess to assist by releasing physicians, especially new graduates, who are willing to relocate, and may then offer them special inducements to do so,

such as housing. In general, physicians' salaries are higher in remote, undeveloped, and rural areas than in the more attractive urban centers.)

The delegation was particularly interested in the planning for the "new cities" that have been built, generally around industrial complexes, in the last two decades. During and following World War II, when many Russian cities and their industries were partially or even completely destroyed, the trend was to decentralize and relocate the industries. Industries that moved into less populated areas of the Asian Republics became the nuclei of towns and then cities, for which all facilities had to be provided by the state. The delegation assumed that "new city" health care services, planned from the beginning rather than superimposed on or adapted from the prerevolutionary structure, would illustrate the Soviet health systems planning theories.

In the two "new cities" that were visited, however, the delegation observed that the pattern showed no significant variations from the pattern in older cities. In both cases, the authorities who received the delegation, when questioned regarding the advantages of planning health services for a "new city," agreed that the greatest advantage was "priority of attention and budgetary support." In Sumgait, the delegation was told that the planning and construction had been aided by industry, about 30 per cent of the hospital construction cost having been paid by the Ministry of Metallurgy. In addition, the new industrial cities have 13 to 15 beds per 1000 population, a much higher ratio than the U.S.S.R. averages.

The health care facilities and services in the new cities of Rustavi (Georgia) and Sumgait (Azerbaijan) are listed and described in Appendix A.

III.

EDUCATION OF HEALTH CARE PERSONNEL

ALL medical and paramedical personnel in the Soviet health care system are trained by the state, employed by the state, and paid by the state throughout their training and service.

MEDICAL EDUCATION

Approximately 523,000 graduate physicians are currently in the Soviet Union, a ratio of about 23 per 10,000 population. On the basis of general averages presented to the delegation (no precise figures were given), about 100,000 of them are *uchastok* or district physicians and another 100,000 are employed in the hospital services. As many as 50,000 may be engaged in specialty training or in other programs of postgraduate education. The remainder are distributed among the research and teaching institutes, the sanitary-epidemiological stations, and the hundreds of polyclinics that form the backbone of the Soviet health care system.

Four levels of medical education in the U.S.S.R. are: (1) undergraduate medical education, (2) specialty training of medical school graduates following three years' mandatory service, (3) continuing education of practicing physicians, and (4) postgraduate education for advanced degrees.

Undergraduate Medical Education

Medical schools, or medical teaching institutes, are conducted by the Republics, but

they have standard curricula, so that graduates of all 85 medical schools in the U.S.S.R. have had the same basic training at graduation. The medical schools are entirely separate from the universities; this separation of academic and medical education took place in 1930. Clinical instruction of medical students is given in selected hospitals, but even these are not "teaching hospitals" of the type familiar in the United States. In the Tblisi medical school classes are conducted in both the Russian and the Georgian languages—a common practice in the Republics.

Approximately 30,000 students enter the 85 Soviet medical schools each year, compared to about 8800 entering the 84 schools in the United States. Entrance is by examination, except for applicants who have completed prior schooling with high honors. A student is eligible to apply to take the entrance examinations after completion of a 10-year course of general school education between the ages of about 7 and 18. Competition for the available entering places is said to be keen; there are at least three applicants for each place, and in some schools seven or eight. In general, the applicants with the highest marks in the entrance examinations are accepted. However, preference is given to students who have worked for two years or longer in some branch of the economy.

Entering medical students must choose one of three curricula which are taught by three separate faculties: general medicine (adult), pediatric medicine, or sanitation-

epidemiology. During the first two years of the six-year course, preclinical subjects are taught. During the third year the students are introduced to the clinical disciplines, and during the last three years they enter increasingly intensive clinical work within their chosen curriculum. However, all acquire a basic medical training that equips them to practice in any field of general medicine. All medical students receive a regular stipend from the state as long as their academic standing is good.

From 70 to 75 per cent of the medical students (and also of the graduate physicians) in the Soviet Union are women—a percentage said to be remaining stable. Several reasons have been suggested for the development of this preponderance of women in medicine: the tremendous loss of young men in World War II, the greater interest of men in entering careers in science, the encouragement given to nurses to go on to medical training, the general Soviet encouragement to all women to seek careers, and the equal availability of education, including medical education, to both sexes. The delegation was told that an attempt is now being made to induce more men to enter medicine, because for women physicians marriage and the responsibilities of family life compete with the obligations of the practice of medicine.

The graduating student receives not a degree but a certification as a *vrach*, or physician. (The term "doctor" applies only to those who later—usually not before the age of 40—successfully complete work for the advanced degree of "Doctor of Medical Science.") There is no formal internship, but some hospital experience is provided during the last years of medical school; in this respect the Soviet system is similar to those in European countries.

Upon graduation the physician is assigned to a first-level medical position, usually in a hospital or polyclinic in a rural or peripheral area of the Soviet Union. Here

he is required to serve for three years under supervision as a member of a team of professional health care personnel. Relatively few exceptions are made, and these are usually for top honor graduates, who may be permitted to go immediately into advanced training. In general, the three-year period of mandatory service is considered to be the young physician's opportunity to repay society for his medical education. Those who are assigned to the more unpopular areas where they must cope with special hardships receive allowances and bonuses in addition to the standard salary for beginning physicians.

Graduate and Postgraduate Medical Education

Observations of this phase of medical education have been discussed in greater detail in the report of the 1963 Delegation on Medical Education.*

Specialty Training. After completing three years of work in his assigned position, a properly qualified physician may, if he wishes, enter specialty training. This, like other forms of postgraduate medical education, is the responsibility of the Institutes for the Advanced Training of Physicians, of which there are 13 in the U.S.S.R. The usual training program entails theoretical and practical work in one of the advanced institutes for six months, followed by two and one half years of work under the supervision of a preceptor in one of the larger hospitals or polyclinics. During this period of supervised work, roughly equivalent to a clinical residency in this country, the student is known as an *ordinatur* or junior specialist.

**Medical Education in the Soviet Union: Report of the Delegation on Medical Education, October 20-November 8, 1963.* Boisfeuillet Jones, chairman, Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office.

In some disciplines the physician is eligible for certification as a specialist after completion of the residency period; in others he is required to return to the advanced institute for additional study.

Shorter postgraduate courses (one and a half to two months) are offered for training in a specific technique or a subspecialty. Correspondence programs are also available, with frequent consultation between the physicians and the faculty of the advanced institute giving the course.

The delegation could not obtain exact figures, but it appeared that about 2500 young Soviet physicians enter specialty training each year, which would suggest that 5000 to 7500 are undergoing this training at any one time. This compares with approximately 29,000 residents and 11,000 interns in training in the United States.*

Advanced Degrees. There is a constant search for the best students, both undergraduate and postgraduate, to enter academic medicine and research. Students selected from the top 10 per cent of their graduating class each year are offered advanced education immediately after graduation; others may enter after the three years of mandatory service. Completion of clinical training as an *ordinatur*, plus research training and the preparation of a thesis, qualifies the student to become an *aspirantur* for the degree of Candidate in Medical Science, and also for appointment as an assistant in a clinical chair, with some teaching responsibilities (usually laboratory or bedside instruction). Assistants often complete the requirements for the candidate degree after their appointment.

Aspiranturs do research work in a specific basic or clinical discipline, usually in collaboration with a professor or senior research investigator who is responsible for teaching and for the laboratory phases of courses in his discipline; but *aspirantura* or research training does not involve clinical work. Completion of a three-year course of

aspirantura and preparation and successful defense of another thesis are required to earn the degree of Candidate in Medical Science. At this point the physician may be appointed as a *docent*, assisting a professor with his main lecturing and other teaching responsibilities, either in a medical teaching institute or in a research institute.

The Candidate in Medical Science may become a *doktorantur* and go on to seek the degree of Doctor of Medical Science, which is held by the professors and by the physicians holding the top posts in research institutes. This is the highest medical degree awarded in the Soviet Union; it is seldom earned before the age of 40.

Financial rewards increase as the student mounts this educational ladder. A staff physician in a hospital earns about 150 rubles a month, whereas a *docent's* salary is about 350 rubles per month, and a professor's is about 450 rubles. One who holds the position of head of a clinical chair makes about 500 rubles.†

Postgraduate Education. The Institutes for the Advanced Training of Physicians also provide postgraduate continuation education or "refresher training" for practicing physicians. A two-month course of refresher training is recommended for physicians in rural areas every three years; for physicians in urban areas, every five years. These courses are designed primarily for general practitioners—the *uchastok* physicians. The physician's salary continues while he studies at the advanced institute; furthermore, he receives a travel allotment and an additional living allowance while away from home, and

*Data as of Sept. 1, 1963, reported in *J.A.M.A.*, Nov. 14, 1964.

†The current exchange value of the ruble is \$1.11. It has recently been revalued; formerly its value was 25 cents (10 cents to tourists), and salary, cost, and budget figures quoted in most previous studies were in terms of this cheaper ruble value.

after completing the course he returns to his practice at a 20 per cent salary increase. The advanced institutes cannot currently handle the volume of applicants for refresher training, so the three-year and five-year cycles represent a goal. Correspondence courses are also available for refresher training.

At least 40,000 practicing physicians annually attend the postgraduate refresher courses. A constant effort is also made to disseminate to practicing physicians the knowledge developed in the medical research institutes (see chapter X). This is done through a series of scientific conferences or "plenums," which are fully financed by the state, including the physicians' travel and living expenses; through meetings of professional societies in all specialties, at local, Republic, and national levels, in which physicians are said to take great interest on their own volition; through traveling educational exhibits of new medical equipment; and through periodic seminars and symposia at the medical schools.

Quality of Soviet Medical Education

There has been considerable discussion as to the quality of medical education in the Soviet Union and the effectiveness of the average Soviet physician who has not taken advanced courses. In American medicine the opinion that Soviet physicians are only partially trained, or have received only a sort of technical or vocational education, seems to be widespread. The delegation was unable in the time and under the conditions of its tour to reach a mature judgment as to the quality of physicians and of medical practice generally. However, it appeared that in terms of time, medical students receive as much higher education in the U.S.S.R. as in most European countries. This education probably is more specialized, technical, and vocational, and less general and liberal, than medical education in the United States.

Specialty training is of shorter duration in

the Soviet Union than in the United States, but the close supervision or preceptorship under which the young physician works for several years after he enters the hospital and polyclinic system must be considered as part of his specialty training; thus, the actual preparation period is longer than the formal period of two or three years of *ordinatura* or residency. For the practicing physician who does not take specialty training, the program of continuation education through the Institutes for the Advanced Training of Physicians must be taken into account as an extension of the basic medical education.

Except for the stress placed on physical medicine, some of which borders on the mystical, the Soviet physicians with whom the delegation talked seemed to be well oriented to clinical medicine, and to be physicians indeed. By such measures as mortality and infection rates, the results of surgical care in the larger hospitals were good.

PARAMEDICAL EDUCATION

Professional health personnel other than physicians are all trained in the paramedical schools, of which there are approximately 600 in the Soviet Union, with a total of about 300,000 students. The schools train nurses, midwives, *feldschers* (a unique category intermediate between nurse and physician), dentists, pharmacists, and technicians. Several of these disciplines may be taught in the same school, but there is an independent faculty for each. The theoretical instruction is given by physicians; practical instruction is given in hospitals, where the paramedical students have the opportunity for clinical observation and receive practical training from their own instructors. They are also assigned to limited, supervised work under hospital personnel.

The hospitals used for teaching paramedical students may be the same ones used for teaching physicians, but the paramedical

schools are independent of the medical schools and the hospitals. However, the delegation was told that new paramedical schools are beginning to be developed in proximity to, and, especially for nurse training, in connection with, large hospitals; in fact, plans are being made for all new hospitals to include nursing schools.

Nurses

There are two basic programs of nurse training. One requires eight years of basic education and a three-and-a-half year paramedical school course, which combines completion of basic education and a nursing program. The other has as a prerequisite 10 years of basic schooling, and takes two years in paramedical school. Girls who started their elementary schooling at seven years of age complete the first type of program at 18½ years and the second type at 19. In either case a qualifying examination must be taken for admission. The two programs graduate about 30,000 nurses each year, representing about 45 per cent of all paramedical school graduates. (This compares to about 32,000 graduated annually from all types of nurse-education programs in the United States.)

The nursing curriculum for the three-and-a-half year course is about 4000 hours. The first year includes anatomy, physiology, microbiology, pharmacology, and histology. In the remaining years, students are taught the practical laboratory aspects in groups of ten, each with its own instructor, and they receive instruction in the clinical services, i.e., medicine, surgery, pediatrics, obstetrics-gynecology, and communicable diseases. In general, there is one hour of practical work for each hour of theory. The students spend four weeks at the end of the first year, three months at the end of the second year, and three months at the end of the course, before final examinations, in practical work in hospitals under the supervision of the nursing service.

After she receives her diploma, the graduate gets one month of vacation, and then goes to an assigned position as a nurse. After working as a nurse for one year, she may take six months of advanced training in physiotherapy or anesthesia, or in the duties of an operating room nurse or chief nurse. This is given in separate teaching units in the hospital. Or she may enter medical training. This may be begun while she is still working as a nurse, if she chooses to take three years of theory in evening classes; after this preparation she may attend the medical school full time and complete the course in a total of five and a half years instead of six. Nurses are encouraged to take medical training, and in fact about 30 per cent of medical students are paramedical school graduates (nurses, feldschers, and midwives).

The role of hospital nurses in the Soviet system is being modified and upgraded to make them more directly responsible for certain aspects of patient care (such as personal hygiene of the patients), thereby relieving the physician—who in the U.S.S.R. performs some functions of nurses in this country—to devote more time and effort to diagnosis and treatment. (See chapter V for a detailed list of nurse functions.) Perhaps correlative, it is now thought that the entering age for nurse training may be too young, and this may be raised in the future, so that graduating nurses will be more mature.

Feldschers

The role of the feldscher is one of the unique features of the Soviet health care system. There is a somewhat higher proportion of men in this service than in the other services. The feldscher is a person with training similar to that of the nurse but lasting six months longer, and including special preparation for first aid, diagnosis, and relatively independent practice under direct physician supervision.

The function of the feldscher, following

graduation, is that of an independent practitioner, frequently in remote areas, in industrial plants, and on collective farms, supervised on a regular basis by qualified physicians of the rayon polyclinics. Feldschers are somewhat comparable to experienced military medical corpsmen. They play an important role in the screening of the population, because of their special training in differential diagnosis and their accessibility to persons who may be unable to reach polyclinics.

Not only medical feldschers, but also sanitary-feldschers, feldscher-midwives, and feldscher-laboratory technicians are stationed at so-called "feldscher points" or local health stations. Like nurses, feldschers are encouraged to go on to medical school following a period of service in assigned posts, and many of them do so. About 30,000 feldschers are graduated from the paramedical courses each year. They are important to the extension of the system to the whole population of a vast area, much of it remote and sparsely populated.

The medical feldscher is able and authorized to treat simple ailments like respiratory infections, and diarrheas, to give first aid in injury or accident, to do vaccinations, to give simple medications, and to conduct health education. He screens requests for home visits by physicians, and is competent to recognize the need for skilled medical attention and to obtain it for the patient.

Dentists

Dentists require somewhat longer training than do other paramedical personnel. The course is three years, with a prerequisite of 10 years of basic education. Stomatology is considered a medical specialty, and stomatologists receive a full six-year medical education.

Midwives

Midwives receive the usual paramedical school education, plus at least one year's extra training in the specialty of midwifery. Midwives do all the uncomplicated deliveries in maternity hospitals and uchastok hospitals, but always under supervision of physicians. (Births with complications—about 10 per cent of the total—are attended by obstetricians.) The delegation was assured that women physicians and wives of physicians also are delivered by midwives, and that there is no present intention of decreasing the number of persons being trained in midwifery.

Others

All other paramedical personnel—pharmacists, technicians, etc.—receive training of the same duration as that of nurses: two years with a 10-year educational background or three-and-a-half years following eight years of general education.

IV.

THE HOSPITAL SYSTEM

REGIONAL STRUCTURE

THE regional structure of the hospital system in the U.S.S.R. includes three primary classifications. These are the *uchastok* hospital, the *rayon* hospital, and the *oblast* or city hospital.

Uchastok Hospitals

The smallest administrative unit in the Soviet hospital system is the *uchastok hospital*, serving a local district with an average population of about 4000. There is apparently some variation of *uchastok* population with population density in the *oblast*. That the population may vary considerably from the average is suggested by the fact that the *uchastok* hospital may vary from 35 to 100 beds. The delegation visited a 75-bed rural *uchastok* hospital in Tashkent that served four *uchastoks* with a total population of 10,000 in an area of about 13 square miles.

A 35-bed *uchastok* hospital typically has two physicians on the staff; a 100-bed hospital has six. One of the two in the smallest hospitals is usually a surgeon; the larger *uchastok* hospitals may have some other specialist services, but in general patients who require specialist consultation must be referred to a hospital at a higher level (*rayon* or *oblast*).

One of the goals of hospital planning in the U.S.S.R. is to increase the size of the

uchastok hospitals. The Ministry of Health recognizes that it would be more economical to construct these hospitals with at least 75 or 100 beds so that more specialist services could be provided closer to the people served. However, a serious problem is posed by the need to bring care to a scattered rural population in several hundred thousand small settlements.

The problem of the size of local district hospitals was discussed with the delegation by representatives of the Ministry of Health of the prosperous Republic of Georgia, which has a large network of medical establishments and, as was noted, the highest ratio of physicians to population in the world. In the rural areas of Georgia there are still small hospitals of from 10 to 50 beds. These are said to have served a good purpose, but with the advent of better roads, health officials are altering the construction standards for rural hospitals and are planning larger institutions, with 120 to as many as 240 or even 400 beds, with standardized design.

The delegation was told that the requirements and needs of the rural population are changing because these people too want the benefits of specialist services. In some cases the occupancy rate in even the present small *uchastok* hospitals is not maintained at a high level, because some of the rural population prefer to go to city hospitals for more skilled care. It will be necessary to continue the small hospitals in remote mountain areas of the Republic because of the difficulty of

transportation, especially in the winter, but the authorities recognize the necessity of providing even the smallest of them with at least a physician and a surgeon. However, since they cannot afford to have diagnostic and treatment skills scattered through a multitude of small hospitals, it will be necessary to enlarge both the hospitals and the areas they serve. In urban areas, only large hospitals are being planned for the future. An obstacle in the way of all these plans, familiar to hospital planners in the United States, is the desire of local populations for their own local hospital, however small.

Rayon Hospitals

The next larger administrative unit in the hospital system is the *rayon hospital*. The rayon is made up of an average of 10 uchastoks. The uchastok physicians are appointed by the chief physician of the *rayon* health department.

Patients requiring specialty care not available in the uchastok hospital are usually referred to the rayon hospital. The typical rayon hospital has 100 to 300 beds, and provides care in 14 to 16 specialties, including traumatic and abdominal surgery, but not thoracic and cardiac surgery and neurosurgery. The thoracic, cardiac, and neurosurgery cases are sent, with their medical records, to the oblast or city hospital.

Future plans of the U.S.S.R. Ministry of Health call for rayon hospitals having from 250 beds (for 30,000 population) up to 400 or even 600 beds, with approximately two 75-bed uchastok hospitals related to each one. At the Georgia Ministry of Health the delegation was given more details concerning the rationale of this planning. The objective of building larger rayon hospitals was said to be "to give the same quality of care to the rural population as to the city population." In that Republic, it is desired eventually to eliminate the feldschers, including the feldscher-midwives, and to give more specialist

care, including obstetrical care by physicians. The Georgia Ministry believes that larger rayon hospitals with modern equipment and more consultants will attract a greater number of better-qualified physicians to the rural areas. The plan is to locate them in the middle of a large area where there will be satisfactory schooling for the physicians' children, and other services. In the first stage the Ministry will attempt to staff the hospitals with specialists from the cities, and then will fill in with personnel trained in the Republic's own medical schools. At the present time Georgia is training 600 *ordinaturs* (residents) per year.

Oblast or City Hospitals

The *oblast* hospital or the city hospital, the largest of the system and the regional central hospitals, today have typically from 600 to 1200 beds, and are staffed for all specialties with physicians at the ratio of 1 to every 10 to 20 patients. Plans for new oblast or city hospitals call for 800- to 1000-bed general hospitals; no institutions larger than 1000 beds are currently being planned, because, the delegation was told, "management is too difficult in very large hospitals."

Hospitals are also attached to various research institutes, both at the Republic and at the U.S.S.R. level. These accept patients suffering from diseases in which the institutes specialize—cancer, heart disease, trauma, etc.

Patients may be admitted to any level of hospital that provides the services required by their conditions.

HOSPITAL STATISTICS

The delegation was given statistics by officials at many levels, including the U.S.S.R. Ministry of Health, the Republic Ministries of Health, and oblast and rayon health departments. There were discrepancies, some



The 300-bed Baku City Hospital No. 2 was built on the same general design as other hospitals visited, but appeared to be somewhat more affluent. It was only a year old, and the wards were bright and breezy.

undoubtedly resulting from difficulties in translation and others from differences in bases of calculation. Both the Soviet statistics and the comparisons with U.S. figures should therefore be recognized as general rather than exact indications.

The total number of hospital beds (excluding sanatorium beds) in the U.S.S.R. is approximately 2.1 million, which gives a ratio of 9.6 beds per 1000 population. Of these, only approximately 200,000 are mental beds. (This is in contrast to the situation in the United States, where about 41 per cent of all beds in the 7100 hospitals registered by the American Hospital Association are in psychiatric hospitals.) The established goal is a ratio of 13.5 beds per 1000, including 2.5 mental beds; these are to be supplemented by 3.0 sanatorium beds per 1000. All of these ratios are now and will probably continue to be higher in urban and lower in rural areas.

About 20 percent of the population of the Soviet Union require no medical attention each year. Of those who do, 80 per cent are seen and treated as necessary on an outpatient basis, in polyclinics. (See chapter VIII.) About 20 per cent of polyclinic patients (16

per cent of the population) are admitted to hospitals.

Figures on hospital utilization were given to the delegation by the Department of Planning and Finance, U.S.S.R. Ministry of Health. The admission rate was said to be 200 per 1000 population per year in urban areas, 180 per 1000 in rural areas. Since the urban and rural populations of the Soviet Union are approximately equal, the overall admission rate based on these figures would be approximately 190 per 1000. (The rate of admissions to registered hospitals in the United States is approximately 150 per 1000 population.)

The average length of stay in Soviet hospitals (including obstetrical but excluding psychiatric) is 13 days in urban areas and 11.5 days in rural areas. There has been a tendency for the average length of stay to decrease: in 1940 it was 19 days. However, it was noted that the trend may be offset in the future by increased longevity of the population.

Occupancy averages appeared to vary greatly. Overall averages of 93 per cent in urban hospitals and 77 per cent in rural hospitals were cited.

TYPES OF HOSPITALS

Soviet hospitals are of six types:

1. General medical and surgical, adult
2. General medical and surgical, children's
3. Maternity homes or hospitals
4. Tuberculosis hospitals
5. Mental hospitals
6. Sanatoria and rest homes

The only significant exception to the rule that in the Soviet Union these six types of hospitals are completely separate is found at the uchastok level. These usually small uchast-

tok or district hospitals, especially in rural areas, generally provide all services, including obstetrical and pediatric, that are within the capabilities of the staff.

Maternity and Children's Hospitals

The segregation of child care (for infants and children below the age of 16) from adult care reflects the Soviet conviction that the child is more than just a miniature adult, and that he needs and deserves different and special care in a special environment. Of the Soviet Union's 9.6 general and mental beds per 1000 population, 2.2 are pediatric beds, and most of them are in pediatric hospitals. The size range of children's hospitals is generally quite similar to that of adult general hospitals; for example, one of the hospitals visited by the delegation was a 450-bed children's hospital at Baku, which had an integrated polyclinic serving 20,000 children, mostly with "prophylactic" care.

The interest in and concern for health care of their children is beautifully exemplified by the lovely murals found on the wall of a playroom in the Baku Children's Hospital. (See photo.) The group observed repeated instances of the care used in making children's hospitals as pleasant as possible.

Separation of maternity and child care from general medical and surgical care is virtually complete at rayon and oblast levels. Even when an obstetric-gynecological department and a pediatric department are a part of a general adult hospital, each is usually situated in a separate building; when in the same building as a general hospital, a pediatric department almost always has a separate entrance. Completely separate adult general hospitals, children's hospitals, and maternity homes are, however, frequently located in the same compound. This is particularly true in "new cities," where tracts of land were set aside for medical centers when the original city planning was done.



Scenes from familiar Russian fairy tales are illustrated in colorful murals on the walls of one playroom in the Baku Children's Hospital. This was a pleasant, well-maintained institution, winner of the Azerbaijan Ministry of Trade's Red Banner award as the "best establishment."

Most maternity care is given in the separate maternity homes or hospitals, which have their own completely separate staffs. Prenatal care is given in a so-called women's consultation service attached to the maternity hospital—sometimes in the same building and sometimes in a separate building nearby. The maternity hospital also has a gynecological service, and most gynecological care is given here rather than in adult general hospitals. Only at the uchastok level is maternity care provided in the same hospital as general adult care. In isolated rural areas it may be given in local health posts (feldscher-midwife points), which often have a few beds. Few births occur in the home, even in the most isolated areas; when a mother does give birth outside the hospital, she and the baby are promptly brought to it by ambulance, which is almost everywhere available through the emergency service (see chapter IX).

The newborn are cared for in the maternity hospital, except for premature infants with complications, who are sent to special premature centers. Once mother and infant are discharged from the maternity hospital, the care of the child becomes the responsibility of the uchastok physician at the polyclinic, to which the birth record is auto-

matically transferred, and any future hospitalization up to the age of 16 is either in a children's hospital or in the uchastok hospital. Special facilities for child care—nurseries (*crèches*) and kindergartens—will be discussed in chapter VII.

Mental Hospitals

Almost all psychiatric beds in the Soviet Union are in mental hospitals. They total about 200,000, compared to the nearly 700,000 beds in psychiatric hospitals registered by the American Hospital Association. The goal is to double the present ratio by 1975. The U.S.S.R. Ministry of Health has designs for 500-bed psychiatric hospitals to care for 400 adults and 100 children. Very few general hospitals now have any psychiatric beds, but plans call for inclusion of some in the new larger oblast hospitals that are projected; these will be in separate departments, and will be used only for acute psychiatric emergencies.

Mental health is apparently not considered to be much of a problem in the Soviet Union; there is no special department or division in the Ministry of Health to deal with it, and there seems to be no urgency about the plans to increase the facilities for such care. However, there is recognition of the desirability of providing for care of acute mental illness in general hospitals. In Azerbaijan the Deputy Minister of Health told the delegation: "We are aware of the trauma caused by sending mental patients to neuropsychiatric hospitals—and it is much easier for the relatives, too, if these patients can come to general hospitals."

Tuberculosis Hospitals

Tuberculosis is an important specialty in the Soviet Union, where it is still a serious problem but is declining; and tuberculosis patients get good care in specialized hospitals. When the delegation requested to see a



In this sunny room at the Children's Hospital in Baku, nurses were "airing" infants by trundling them back and forth across the handsome parqueted floors in large modern prams. This type of flooring was seen in hospital after hospital, both in wards and in corridors, often with linoleum or carpeting covering the center.

large teaching hospital, it was sent to a 500-bed tuberculosis hospital in Leningrad. There medical students from the Military Medical Academy are taught and physicians receive postgraduate training in tuberculosis treatment and surgery. However, emphasis in the handling of tuberculosis, through which authorities hope to eliminate the disease, is on early detection and treatment through frequent screening examinations of the entire population, especially children, and careful follow-up and treatment of all suspicious cases. This process of follow-up, called "dispensarization," is a striking aspect of Soviet health care. It is a function of the polyclinics and dispensaries, and will be discussed in detail in the chapter on polyclinics (see chapter VI).

Sanatoria

The sanatorium movement is a joint venture of the Ministry of Health and the trade unions. Great emphasis is placed on the sanatoria as a vital part of the overall health pro-

gram. The sanatoria, or rest homes, are reminiscent of the spas of Europe and of such places as French Lick and Saratoga Springs in the United States. They perform a combined resort and medical care function, and many of them are located in areas that are attractive as resorts—on the Black Sea, the Caspian Sea, and in the more southern Republics generally, often in locations where mineral waters are available. Workers with various disabilities are allowed 28 days per year at these sanatoria, and special sanatorium or rest home benefits may be the reward for superior work performance.

There are also special "night sanatoria" for persons who may need minor medical care or treatment for minor psychiatric conditions but who are able to continue to work a regular eight-hour day.

HOSPITAL FINANCING

The major part of the financing of Soviet hospitals at all levels comes from the national budget. As has been said, the national budget received by the U.S.S.R. Ministry of Health is allocated to the Ministries of Health of the Republics, who are then responsible for its reapportionment within the Republics. In addition the Council of Ministers of each Republic may make supplementary funds available, and more funds may be added by the oblast and the rayon. The supplementation may also include contributions from trade unions and industry. The proportion of supplementation varies, but tends to be relatively small—10 per cent or less. In all cases the national budget provides by far the largest share of the financing of hospitals, both capital and operating.

The delegation was given hospital construction costs in only a few cases, and even in these it was difficult to be sure of the base being used. In the oblast in which the Uzbek



On a bright summer day, little patients at the Children's Tuberculosis Sanatorium in Tashkent were all resting on the hospital's wide-open one-story verandas. This was a happy institution; it discharges 80 per cent of its bone tuberculosis patients with no joint deformity.

uchastok hospital visited was located, the cost of one bed in a 500-bed hospital, including equipment, was about 4000 rubles, whereas in a 120-bed hospital it was about 5000 rubles. In Baku (Azerbaijan) the actual construction cost given for the 300-bed Caspian Sea Transport and Marine Workers' hospital was 1.6 million rubles or 3300 rubles per bed. In Leningrad, the construction cost for the 300-bed City Hospital No. 2 (in 1958) was said to have been 2 million rubles or about 6600 rubles per bed; but this construction cost may have covered the integrated polyclinic as well as the inpatient beds.

The same doubt as to specific components existed in regard to annual budget, in the few instances where this was given. For example, Rustavi City Hospital (300 beds) and Moscow City Hospital No. 67 (1500 beds) quoted 400,000 rubles and 2 million rubles, respectively, for their total annual budgets, bringing both to 1330 rubles per bed; but Leningrad City Hospital No. 2 (360 beds, plus integrated polyclinic) received 1.1 million rubles total, or 3066 rubles per bed—again suggesting that the annual budget covered both hospital and polyclinic. A larger budget per bed for Leningrad City Tuberculosis Hospital No. 2—2550 rubles per bed—was probably accounted for by a considerably higher than average cost per patient day: 6 rubles (for medical care, medication, and food), compared with 3.65 rubles quoted for Rustavi City Hospital and 4.50 rubles for Moscow City Hospital No. 67.

As an example of annual expenditures of a Soviet hospital, the delegation was given the following 1964 partial figures for City Hospital No. 2 in Leningrad:

Salaries	517,000 R.
Food	106,000 R.
Medicine	69,000 R.
New equipment	70,000 R.
Disability and sickness insurance payments	30,000 R.

The last figure covers payment of full salaries to sick employees.

The total per capita expenditures for the health program in Uzbekistan in 1965 were estimated at 19 rubles (which was compared with 14 kopecks—0.14 rubles—per capita in 1914). The delegation was also given total budget figures for the Uzbekistan health program: 194 million rubles in 1964 and 226 million in 1965. The current Uzbekistan five-year plan was said to call for an expenditure of 85 million rubles for "new medical establishments" of all types.

DESIGN AND CONSTRUCTION

Several institutes deal specifically with the architectural design of hospitals and other medical establishments. The Institute for Design and Medical Establishments in the Department of Capital Construction of the U.S.S.R. Ministry of Health deals with the design problems of larger hospitals, from 600 to 1200 beds. A similar institute in the Russian Federated Republic works with the design of smaller hospitals and other institutions. Proposals emanating from these institutes are reviewed by the Ministry of Health.

The standard architectural designs account for the overall sameness of hospital architecture and layout that was noted wherever the delegation went. Generally speaking, Soviet hospital buildings are four to six stories high; if the hospital is large, there are separate buildings for separate departments, such as maternity, pediatrics, communicable diseases, and outpatient clinic (polyclinic). Even the newest hospital buildings have an institutional, block-like construction reminiscent of Western European and American hospitals constructed around the turn of the century. Two exceptions seen by the delegation were the new hospitals attached to research institutes visited in Moscow. The first was

the 17-story building now under construction for the Vishnevsky Institute for Thoracic and Cardiac Surgery, a modern glass and concrete structure with aluminum sheathing and window frames, resembling in outline a miniature United Nations building. The second was the hospital at the Blokhin Institute of Experimental and Clinical Oncology, where an imposing series of tan-colored brick buildings of modern design, one still incomplete, had been built during the past year; here the quality of construction appeared to be far better than any seen elsewhere on the tour, though still very inferior by U.S. standards.

The typical nursing unit is of single-corridor design, with 40 to 60 beds in 10 to 12 rooms, usually four- to six-bed wards. The space allowance per bed is considerably less than the minimum standard for U.S. hospitals. Crowding was particularly noted in the case of newborn nurseries, which were filled with cribs containing swaddled infants. Each nursing unit had a central nurses' station, a physicians' office, a treatment room, and a floor dining room, where all patients who were able to do so took their meals. In many hospitals, and in polyclinics too, there was little or no provision for privacy—no cubicle curtains in the wards, or even in examination rooms, where several physicians might be examining their patients at the same time. Lavatories in patient rooms were seen only once by the delegation, in City Hospital No. 2 in Leningrad.

Quality of Construction

Construction in general appeared to be of low quality. Hospitals two or three years old were generally indistinguishable from those that were much older. Maintenance was generally poor, contributing to the appearance of deterioration.

In most of the hospitals visited, similar construction details were noted. Floors were usually parqueted, often with a strip of linoleum or other floor covering in the center only. A number of corridors were poorly lighted. Doors were generally narrow with wooden frames. Elevators, usually of the type that became obsolete in the U.S. 30 or 40 years ago, in most cases did not level properly. Finish details were generally poor.

Fire Safety

The delegation noted that there seemed to be far less concern about fire safety and fire protection than in U.S. hospitals. In answer to questions, its members were told that these problems were taken into consideration in the design and construction of the hospital. Patients are not permitted to smoke in bed except under special conditions.

In Leningrad, on the last two days of hospital visits, the delegation saw for the first time fire cabinets that contained fire hose. In one case it appeared to be very old hose, loosely piled into the cabinet. In the other hospital there was a small fire alarm button adjacent to the hose cabinet, and a fire call chart was seen on a corridor wall.

HOSPITAL ADMINISTRATION AND STAFFING

HOSPITAL ADMINISTRATION

Chief Administrative Officers

ALL chief executive or administrative officers of hospitals are physicians, with the title of "chief physician." (There are no nonmedical hospital administrators in the Soviet Union.) The relationship of the chief physicians to their institutions is comparable to that of medical commanding officers in military hospitals in the United States. They are selected and appointed on the basis of demonstrated interest and ability in administration and leadership. The chain of appointments, stemming from the Republic Ministry of Health and the Soviet of the Republic, is shown in figure 2.

The U.S.S.R. Ministry of Health explained that in the Soviet Union there is no difficulty in attracting physicians to the field of administration. Health administration is recognized as a medical specialty, and a difficult one, requiring knowledge of organization, economics, statistics, and planning, and training in at least one clinical specialty. Many of the good administrators are said to come from the field of surgery.

There are some monetary inducements to enter administration. In small hospitals the salary of the administrator is the same as that of the surgeon, and in larger hospi-

tals, to which the administrator can move as he gains experience and proves his ability, his salary is somewhat higher.

No special preliminary training is given for administrators, except that within the Institutes for Advanced Training of Physicians some courses in administration are offered. Each Republic also provides some "on-the-job" training in the form of seminars to improve health services administration, and offers training courses of about six weeks' duration in various aspects of administration. Some correspondence courses are also available.

The actual work of administration takes only about half of the working day of most hospital chief physicians. This is not surprising since, as the delegation was informed by one administrator, "We are provided with buildings, trained personnel, equipment, pharmaceuticals, food, and maintenance, so we physicians are able to concentrate on the treatment of patients." The administrator may still carry on some clinical activities, for which he receives additional compensation. The delegation was told that about 80 per cent of the physician-administrators do this.

Assistants and Department Heads

The hospital administrator may have up to four deputies, the number depending on the size of the hospital. There are at least two: the deputy in charge of the medical care

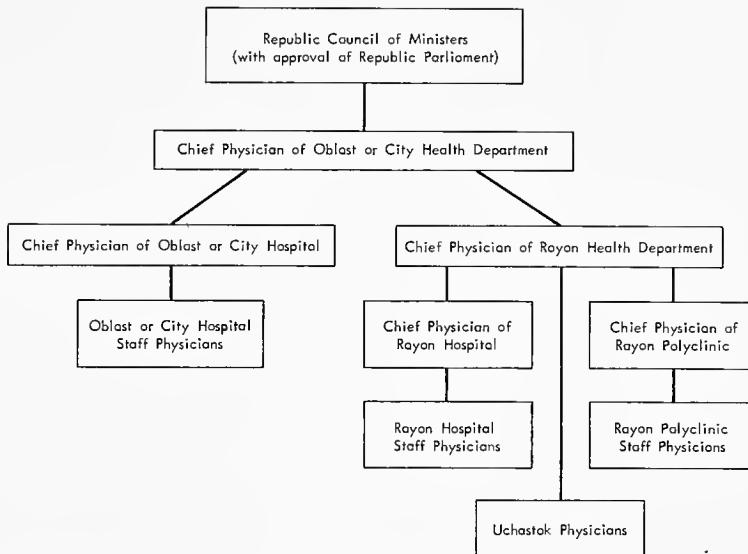


Figure 2. Chain of Physician Appointments in the Soviet Health System.

program, who is always a physician, and the deputy for business administration, who is always a lay person.

"These deputy administrators for business administration have different backgrounds. Most of them are engineers, and many are also trained in economics and finance," the delegation was told. They are selected on the basis of demonstrated ability and experience, and may receive special training on the job, through lectures and seminars. The deputy for business administration is responsible for personnel employment, payroll, and records for all departments, and also for requisitioning drugs and medical supplies from central stores of the Ministry of Health, and food from central stores of the Ministry of Resources.

The other two deputies, when they exist, are both physicians. One may direct the polyclinic if one is attached to the hospital and the other may be in charge of work capacity evaluation and rehabilitation.

The nursing service is under a chief nurse who reports to the deputy director for

medical care. In some of the larger institutions, each major section, such as general medicine or surgery, has its own chief nurse, who is responsible to the physician in charge of that service.



A staff meeting at Baku City Hospital No. 2. The preponderance of women is very conspicuous, as is the impossibility of distinguishing the women physicians from the nurses, in the absence of stethoscopes. Note too the street clothes under the white gowns of the women, and their assorted footgear.

Administrative Duties

The delegation was given a detailed picture of the work of the chief physician of a large city hospital, who reports to the chief medical officer of the rayon health department. This chief physician spends about four hours a day on his administrative duties; he then works as a specialist in the hospital during the remainder of his six-and-a-half-hour day. He is a member of the staff in the hospital department where he works, not its chief. This chief physician said that his administrative duties did not interfere with his duties as a physician, or vice versa.

The chief physician participates in a number of meetings and conferences daily. Each morning the physicians who have been on duty on the night shift—the medical deputy, night polyclinic physician, and emergency physician—make brief reports; this takes about 20 minutes. The chief physician then confers with the deputy for business administration for about an hour, and also with the bookkeeper and with the chief nurse. Every few days he has a conference with the deputy for the polyclinic. At regular intervals meetings are held at the rayon health department and the city health department. "Plus plenty of meetings with people who just want to see the director," the delegation's informant added.

Administrative Reports. A part of this chief physician's administrative work is making reports to the chief medical officer of the *rayon*. He makes a financial report quarterly. The hospital's budget is established for a period of one year, divided into quarters. Money is requisitioned monthly as needed, but under normal conditions the quarterly total may not exceed the quarterly budget. Under special circumstances, such as a very high census or an increase in patient days, the quarterly budget may be increased on the application of the chief physician, with the approval of the rayon council.

A variety of reports are made annually.

Among the data reported are:

- Average length of stay by disease category (approximately 50 categories).
- Mortality in the hospital.
- Discrepancies between outpatient diagnosis and diagnosis from subsequent inpatient workup, and between inpatient diagnosis and postmortem findings.
- Incidence of various types of disease.
- Percentage of residents of each *uchastok* under care.
- Percentage of patients visiting polyclinics.
- Percentage of polyclinic visits made by patients of their own volition as compared with visits resulting from follow-up by physician or nurse.
- Percentage of coverage by follow-up ("dispensarization") of specific conditions of patients registered, including job placement of those whose conditions indicate a change in type of work.

Evaluation of Care. The chief physician of the hospital is responsible for evaluation of all work being done in the hospital, and of the quality of patient treatment and preventive measures. About once in three months each department head reports at a staff meeting on the work of his department. Every week or two the chief physician personally inspects the various departments and talks to the patients. There is considerable sensitivity to "public opinion;" each department has a book available in which patients may record their complaints or compliments concerning the service. The delegation was told that last year 586 unsolicited complimentary letters had been received by the hospital, and only two that expressed dissatisfaction with treatment.

Inspections of the hospital are also made

by the rayon health department and/or the city health department at least twice a year. Such inspections are by physicians, nurses, pharmacists, etc., working as a team. Reference was also made to a system of review by staff of another hospital, followed by conferences with the chief physician. There is also an annual financial audit and review.

Community Relationships

Community Participation. Much less community participation is found in hospital management and operation in the Soviet Union than in the United States. What there is, is exercised chiefly through the hospital's advisory council which is composed of the chief physician of the hospital and his first deputy, the chiefs of industrial workshops whose employees are served by the hospital, the directors of factories in the rayon or oblast, and representatives of the trade unions. The delegation received no information as to the precise activities of these advisory councils.

In Baku there was said to be a citizens' advisory committee of 30 to 40 members in each uchastok. These committees are concerned with sanitation and environmental health. Members of the community other than the leaders who serve on the advisory council do not participate to any considerable extent in hospital affairs. The delegation was told in Tbilisi that in springtime, when there is a general clean-up with planting of trees and similar activities, people from the community do come in to help, but volunteers are not used to assist in care of the patients or in the daily operation of the hospital. There appears to be no organized or sustained volunteer activity of any kind.

Hospital Visiting Privileges. Visiting privileges are limited in all Soviet hospitals, even in those for children. There are many exceptions, however, both for children and for very ill adult patients. In the children's building of Moscow City Hospital No. 67, the

delegation was interested to find provision of rooming facilities where mothers could stay overnight. Some hospitals permit mothers to assist with the care of their small children after surgery. The children's bone tuberculosis sanatorium in Tashkent permitted parents to visit all day, but not to remain overnight.

Presumably visiting is less restricted in most small rural hospitals. In the uchastok hospital visited in Tashkent, several adult patients were being tended by family members. In the hospital's pediatric ward mothers were sleeping with their sick babies.

STAFFING AND DAILY ACTIVITIES

The tempo of work in Soviet hospitals is quite different from that in a typical general hospital in the United States. There is no hustle and bustle, and little moving about of patients. Repeatedly, the members of the delegation found themselves wondering, "Where are the very sick patients?" The only really sick patients seen on the tour were three 24-hour postoperative patients in the hospital attached to a Moscow research institute (the Institute for Thoracic and Cardiac Surgery). They had undergone cardiac surgery and were surrounded by staff and equipment in a recovery room.

In general, there was an impression of less vigorous therapy than is usual in this country. Several times a comment to this effect, or a remark about the equipment or the condition of the hospital buildings, brought a quick reminder that all this service was provided free to the patients—with perhaps the implication that therefore there was no reason to hurry about getting them well and out of the hospital. It was obvious, however, that the personnel were dedicated, kindly, and proud of their work and their hospitals, and that the personal care received

by the patients was good, whatever the conditions that surrounded them.

There is little turnover among hospital employees, and chief nurses are usually experienced and have worked for a number of years in the same institution, often on the same ward. This makes for a cohesive team, and the delegation was impressed by the closeness of the physician and nurses to the treatment of their patients and to each other.

Salaries and Perquisites

Hospital salaries are paid twice monthly, in cash; or payments are made directly to the employee's bank if desired.

Monthly salaries paid to hospital personnel of a large city hospital were stated to be as follows:

Professor	500 R.
Chief physician	190 R.
Staff physician	140-160 R.
Surgeon	160 R.
Chief nurse	90 R.
Staff nurse	60 R. (starting)
Senior laboratory technician	60 R. (starting)
Feldscher	70-75 R. (starting)

In this hospital the professor receives additional payment for part-time clinical practice. The chief physician is also paid an additional 70 rubles monthly for his part-time work as a specialist; he has an annual paid vacation of 24 working days. (The delegation learned that this chief physician pays only eight rubles per month for his apartment.)

The delegation was told at the U.S.S.R. Ministry of Health that 50 per cent of Soviet hospital expenditures is for salaries. The payroll component of total expense in U.S. registered hospitals is 66 per cent; however, this represents primarily nonphysician salaries and hence is not comparable.

Fringe Benefits. Sick leave provisions

for hospital employees are the same as those for all Soviet Union workers. During temporary or permanent disability, no employee receives less than 60 per cent of his regular pay; and after nine years of employment at full pay, the worker at any level receives 100 per cent of his salary for four months, after which his health status is reviewed by a commission to determine the degree of disability. Permanent, total disability entitles him to 100 per cent of his salary for life. Accrued sick leave benefits are maintained if the worker is transferred to another job, but lost if he moves voluntarily; in that case sick leave pay drops back to 60 per cent of his salary until he has been in the new position for nine years. There are some variations in the system, but all are geared to discourage turnover and voluntary moves from job to job.

There is no monetary bonus for superior performance by an employee, inasmuch as salary is based only on job classification, as established by the Ministry of Health. However, the superior employer may receive a letter of appreciation and may be granted, by the trade union, special rest home stay benefits during vacation time. Discharge of any worker requires the approval of the trade union. All hospital personnel, including the chief physician, belong to the same union; dues amount to one per cent of salary.

Uniforms. The absence of anything resembling uniforms is very noticeable among personnel in Soviet hospitals. Men physicians wear white coats on the wards, but women physicians as well as nurses wear white scrub gowns over their ordinary street clothes, with plain round caps that largely conceal their hair. Ordinary street shoes (including spike heels, as observed in one operating room during surgery) are worn by all personnel.

Some women physicians wear a stethoscope, perhaps as a badge of office or a sort of status symbol; there is no way of distinguishing a physician from a nurse without it.

The delegation wore white gowns and caps while visiting some hospitals. Their guides in some cases were very particular about gowns in nursery areas, but visitors, surgeons, and nurses alike wore them with street clothes and street shoes. (It was perhaps because of the habitual wearing of street shoes in hospitals that the delegation saw frequent use of pieces of wet burlap or sacking at the entrances of nurseries and other special rooms. These were presumably wet with disinfectant.)

Staffing Patterns

The patient care team in Soviet hospitals has traditionally consisted of one physician, one nurse, and one ward maid. The present goal is said to be the elimination of the ward maid from direct patient care. Today the staffing ratio for health service personnel in hospitals calls for three paramedical personnel, about half of them nurses, to each physician. These are "normative" standards established for hospitals of various sizes by a commission made up of department heads in the U.S.S.R. Ministry of Health; they are modified from time to time on the basis of experience and of recommendations from the health departments and institutions involved, and are applicable in hospitals throughout the Soviet Union. There are, however, many minor deviations from the standards due to variations in hospital size and other factors. During hospital visits and interviews, the delegation received some detailed information on staffing and staff working hours.

At the Ministry of Health for the Republic of Georgia the delegation was told that a typical 100-bed hospital has 10 staff physicians and 35 paramedical personnel, or one physician and 3.5 paramedical personnel to 10 patients. Two of the paramedical personnel are nurses.

Obviously much less typical (except of very large city hospitals), but more detailed, are figures given to the delegation at the

1500-bed Moscow City Hospital No. 67. (See appendix A for a full report of the delegation's visit to this hospital.) The hospital is used for training of both medical and paramedical students, and also of practicing physicians, short-term students at the Institute for the Advanced Training of Physicians, who receive part of their "refresher" courses here. The staffing of the hospital is as follows:

- **Clinical staff—215.** Most of the chiefs of the 28 clinical departments are either Doctors of Medical Science (nine of these are professors) or Candidates in Medical Science.
- **Ordinaturs (residents)—Approximately 50.** Each year 25 are admitted for a two- or three-year term, depending on their specialty.
- **Paramedical personnel—1050.** Included are:
Nurses—750 (650 on the wards; 100 in various departments, such as X-ray, operating room, etc.)
Ward maids ("juniors")—300
- **Nonprofessional—215.** This includes personnel engaged in such tasks as cleaning and maintenance.

Thus the ratio is one employee per bed, including physicians and *ordinaturs* in the total.

A detailed description was given of the nurse staffing in this hospital. There is a chief nurse for the entire institution, and a chief nurse for each department who reports to her. Many of the departments occupy entire 60-bed floors, although some floors may be divided into two separate departments. Each department has approximately 18 nurses, though this varies somewhat, surgery, for example, also having operating room nurses, nurse anesthetists, surgical dressing nurses, special nurses in postoperative units, etc. All nurses work six-and-one-half hours per day—163 to 169 hours per

month, depending on the number of working days in the month. A typical staffing pattern for a 60-bed floor in this hospital is:

8 a.m. to 3 p.m.—four nurses on duty in the wards.

3 p.m. to 8 p.m.—three nurses on duty.

8 p.m. to 8 a.m.—two nurses on duty.

Night-shift nurses receive either overtime pay or compensatory time off, in view of their long hours.

Turnover of nursing staff was admitted to be a problem at this hospital. Some nurses seek "easier" jobs, for example in polyclinics; others choose to enter medical training.

Functions of the Hospital Nurse

The chief physician of Leningrad City Hospital No. 2 described the functions of the nurse in the Soviet hospital. Because of the extreme standardization throughout the Soviet system, it may be assumed that these functions are typically for nurses in all hospitals. They include:

- Carrying out all treatment prescribed or recommended by the physician.
- Taking temperatures morning and evening.
- Attending to the patients' personal hygiene.

- Changing the patients' clothing and bed linen.
- Assisting patients with reading and writing of letters, as needed.
- Supervising the cleanliness and sanitation of the ward.

In general, the nurse does every sort of personal service for the patients, except that ward maids carry bed pans. The nurse can also administer all injections, including intravenous injections, but except in emergencies the physician performs transfusions. Post-operative surgical dressings are also done by the physician.

On the day shift there is one nurse to 15 patients; on the night shift, one to 30 patients. Under the "old system" of the three-person patient care team, one nurse took care of 30 patients during the day shift as well. The night nurse is required to report to the chief of the department each morning.

Bedside care of the patient is heavier work for the Soviet nurse than for her American counterpart, if only because of the almost complete absence of the adjustable Gatch mechanism on patient beds and of lavatories in patient rooms. Low enameled iron or stainless steel cots were seen uniformly in all hospitals visited.

VI.

SPECIFIC HOSPITAL SERVICES

SPECIFIC professional services vary considerably from hospital to hospital. The variations appear to be related not only to differences in hospital size, but also to the locale of the hospital—whether it is in a large city or a smaller one, an old established one or a “new city,” a central city in the R.S.F.S.R. such as Moscow or Leningrad or a city in one of the outlying Republics such as Uzbekistan. Many of the observations recorded in this section were made in one or two of the individual hospitals visited, not in all or even most of them.

X-RAY SERVICES

Diagnostic X-ray services were decentralized in all the hospitals visited; X-ray therapy is generally given elsewhere than in general hospitals (in oncology dispensaries, research institute hospitals, etc.). In the general hospital, each section—medicine, surgery, etc.—had its own X-ray department with an assigned radiologist and a small technical staff. The usual installation was two diagnostic machines in a single room, with one radiologist and a technician. The stated reason for this decentralized system was the convenience of patients and staff. The decentralization was in turn one reason, undoubtedly, for the fact that relatively few stretchers were observed. Patients are seldom moved about; when necessary, they are

moved in their beds—and this is possible because the beds are of the narrow European gauge and not encumbered by Gatch mechanisms.

The X-ray equipment seemed adequate, if not of the latest model, and the delegation was told and shown that hospital radiology departments can do laminograms and angiograms. The films that were seen were of good quality, and despite the system, the radiology services seemed to be adequate for the care of the patients, though they were used less than X-ray services in U.S. hospitals. (No routine chest X-rays were done in hospitals, for example; but chest X-rays are presumably done routinely in the mass screening examinations at polyclinics.)

LABORATORY SERVICES

The delegation was told at its initial interview at the U.S.S.R. Ministry of Health in Moscow that there was no regionalization of laboratory services—no central service even in Moscow or Leningrad, or elsewhere in the Soviet Union. The planners would like to organize central laboratories that could service many hospitals efficiently, but local hospitals are not in favor of centralization of this activity.

The laboratory services in larger hospitals were separated into the following divisions: clinical microscopy, hematology,

microbiology, chemistry, and electrocardiography. Generally, a physician was in charge of each laboratory, even though in most instances there seemed not to be enough work to justify the assignment of a professional person full time. The exception to this is the electrocardiography department. Electrocardiographs are used frequently and are available to all patients. Multiple leads are used; in one laboratory a 13-lead procedure was mentioned. Most of the electrocardiographic equipment was of the direct-writing type.

All the laboratories were small, even in the largest hospitals, and the equipment was sometimes quite simple. Not many determinations appeared to be done in the laboratories and the number of tests available seemed limited. Thus much less emphasis seemed to be given to laboratory medicine in Soviet hospitals than in this country, and treatment is much more empirically based on history and physical examination.

BLOOD BANKING AND TRANSFUSIONS

Each community has its own blood center, operated by the health department and usually located in a hospital. The delegation surmized that blood transfusion is not as important a therapeutic measure as in the United States, and that smaller quantities of blood are used in each transfusion given. Exchange transfusions for the newborn are done only in maternity hospitals with special premature baby centers.

Procedures at the blood center at Rustavi were typical of those observed and described in other interviews. The blood bank, located adjacent to the city hospital, is open 24 hours a day, and has a registry of 700 donors, who come in regularly two or three times a year. There is a special registry for rare blood types. In addition, other people come in to donate blood from time to time—a total of

about 60 per week. The blood bank formerly paid for blood, but now gives donors cards that allow them additional vacation time at a sanatorium or health resort.

Blood is collected in 270-cc. bottles, two bottles per donor; in a transfusion two or three bottles are usually used. Intra-arterial transfusions are used in cases of shock; the blood typing is done by the physician in charge of the patient. This Rustavi hospital does from 5 to 10 transfusions per week. No replacement transfusions are done in Rustavi; these are done only at the maternity hospital center in neighboring Tbilisi. The delegation was informed that in Tbilisi there is a central blood bank in one hospital; blood is dispatched from there to other hospitals by special motor transport, as it is needed.

Blood is stored at the blood center in a small kitchen-sized electric refrigerator. It is kept for 30 days, and if not used is then converted into plasma; none older than 45 days is used.

No cadaver blood is now being used. (The use of cadaver blood is said to be declining throughout the Soviet Union.) The delegation was told that there is no problem with serum hepatitis.

BONE AND TISSUE BANKING

At the Institute for Traumatology and Orthopedics in Leningrad, the delegation learned that tissues obtained from cadaver resections are preserved in a central tissue bank that supplies the entire country. Tendons, fascia, skin, and, for the past six years, bones are banked. The bone bank material is especially useful for large replacements where grafts are required in nonunion of fractures. (Metal prostheses for nonunion of fractures are being used experimentally in the Central Institute for Traumatology and

Orthopedics in Moscow.) The tendon bank provides material especially for repair of finger injuries.

Frozen cadaver bones and tendons are sent to various parts of the Soviet Union from this institute; some are frozen at -70 degrees C. and stored at about -22 degrees C., and some are freeze-dried for shipment in paraffin blocks to warm climates. They must be used within a month. Soft tissues are removed under sterile conditions and preserved in fluids; these are usually used within two months.

AUTOPSIES

Soviet hospitals have a high autopsy rate. The delegation was told that autopsies are required as a general rule, and no consent from the family is necessary. However, if the family requests the staff not to perform a postmortem examination, it may be omitted with the approval of the chief of the department and the chief physician.

A chart showing hospital statistics for the years 1953-62 was hanging on the wall of the chief physician's office at the Rustavi City Hospital. The figures shown below were excerpted from this chart. They illustrate the death rate in the hospital, the autopsy

rate, and the percent of diagnoses confirmed at autopsy, during these years.

ANESTHESIA

Anesthesia is administered by both physician anesthesiologists and nurse anesthetists, the delegation learned. At the Tbilisi City Hospital, the staff included six anesthesiologists and 12 nurse anesthetists, but whether this was the usual ratio the delegation did not find out.

PHYSICAL MEDICINE

More emphasis is placed on physical medicine in the Soviet health care system than is the case in the United States. Every hospital and polyclinic has an extensive physical therapy department, and some of the machinery and treatments would be considered, in this country, to be in the fringe area. Tashkent seemed to be a center for various forms of hydrotherapy and "balneology." (An account of the delegation's observations at the Uzbekistan Institute of Physiotherapy and Curatology is given in the discussion of research institutes in chapter X.)

Physiotherapy is not taught extensively in the medical schools but is a specialty

Year	Total Admissions	Total Deaths	Total Autopsies	Total Diagnoses Confirmed at Autopsy	Per Cent Deaths	Per Cent Autopsies	Per Cent of Diagnoses Confirmed
1953	3418	47	41	31	1.36	87.3	75.7
1954	3982	54	39	33	1.34	72.3	84.7
1955	3703	65	49	48	1.73	75.4	98.0
1956	3500	59	41	32	1.67	95.5	78.1
1957	4323	65	54	45	1.48	83.1	83.4
1958	4410	65	54	50	1.45	89.3	86.3
1959	4506	67	59	52	1.47	88.1	88.2
1960	5049	58	47	37	1.14	81.1	78.8
1961	5277	62	52	42	1.16	83.9	80.8
1962	5079	48	40	35	0.94	83.4	87.5

studied as a postgraduate subject. It is important in the routine care of illness in the hospitals, and even more so in sanatoria and rest homes.

In an excellent 300-bed city hospital in Baku the delegation encountered another surprising form of treatment. A staff member was developing a machine to do acupuncture for treatment, for example, of "allergy cases with seventh nerve paralysis." Acupuncture is an ancient Oriental therapy, a system of treating all diseases by inserting needles of various lengths into the body at designated spots, with different combinations for different diseases. The machine in Baku had been the subject of a recent article in a German periodical.

macists were on duty. This pharmacy, which was better than average in appearance but still looked as though it had been designed 30 years ago, served a 360-bed hospital (with 8267 admissions in 1964) and a polyclinic with 1200 visits a day. In another medium-sized hospital without a polyclinic, the pharmacy occupied about 400 square feet and had two pharmacists at work preparing powders in papers for distribution to the floors. The drug cabinets on nursing floors were small and simple; in some cases the nurses went to the pharmacy for their drug supplies.

In general, the delegation gained the impression that, although the important pharmaceutical agents are available for the treatment of patients, hospital pharmacy is not nearly as significant an endeavor as it is in the United States.

SOCIAL SERVICE

Social service in the sense understood in the United States is unknown in Soviet hospitals. In one city hospital the delegation was told that the social problems of patients are handled by a "committee at the hospital." The closest thing to organized social service work is the placing of patients with certain disease conditions in suitable jobs; this is done in the polyclinics rather than the hospitals (see chapter VIII).

PHARMACY SERVICES

Hospitals have available only the drugs and biologicals approved for use by the Ministry of Health. Presumably all of the important and critical items are included on the list, but there are of course no competitive brands, and no problems arising from multiple choice of similar drugs. In every hospital where the pharmacy was seen, the stock of drugs seemed small for the size of the institution. The largest pharmacy visited was in a Leningrad city hospital, where eight phar-

DIETARY SERVICE

The delegation visited the kitchen at the city hospital in Rustavi. It was in a separate building some distance away from the hospital, next to the laundry and heating plant. The kitchen facilities were very simple, appearing mid-Victorian to American eyes. There were large, deep preparation sinks, one big range with a black-painted metal hood, and many capacious soup kettles. The food was transported to the ward building by carts.

The fare provided was very plain and simple, consisting mostly of a single hot dish with bread and a beverage at each meal. Four meals were served daily: breakfast at 9 a.m., lunch at 12 noon, dinner at 4 p.m., and supper at 8 p.m. There was a dining area on each ward, where patients who were able to do so served themselves from a buffet and then ate at tables. The patients were expected to rinse their dishes and spoons and return them to the pantry.

The hospital had one dietitian, who the

delegation was told had been trained in the paramedical school. Special diets were prescribed by physicians for inpatients with conditions such as cardiovascular, kidney, and digestive disorders, and were planned by the dietitian. Patients were seated at tables where these diets, identified by number, were served. The delegation was told that in the polyclinic the uchastok physician recommends special diets for outpatients to follow at home when indicated.

MEDICAL RECORDS

Medical records in all the hospitals visited appeared to be simple, hand-written, and quite complete. A single record is kept for all departments, with copies of X-ray and laboratory reports. In one hospital the delegation saw records being dictated by a physician as he made rounds in the wards, and written down by the nurse who accompanied him. Here the records were kept in the offices of the doctors on the wards. In one polyclinic they were filed alphabetically, by uchastok, on open shelves in a small dark medical record room.

In one large hospital the medical records were the specific responsibility of the ward physician, who was required to enter a progress note on every patient every day. This



In the medical record room of Rustavi City Polyclinic, handwritten records of adult patients from eight uchastoks are filed alphabetically, by uchastok, in these open shelves.

ward physician was the full-time medical officer in charge of a nursing unit of 40 to 60 beds; she was responsible for the care of all the patients and worked with the chief nurse in ward management. Most larger hospitals seemed to have this type of organization.

The medical record of an individual remains with the hospital (or polyclinic) that creates it; if the patient is transferred to another institution, a written summary of the record is sent to the institution receiving him. However, when a child becomes 16 years of age, all his medical records are transferred from the children's hospital and polyclinic to their adult counterparts.

VII.

MATERNITY AND CHILD CARE

THE importance of maternal and child health in the Soviet Union was pointed out earlier, in the discussion of the hospital system (chapter IV). The health care of mothers and children is supervised by a separate department within the Ministry of Health, and it is given largely in separate maternity hospitals and pediatric hospitals.

Under Soviet law pregnant women and mothers are entitled to many types of special consideration. Among the persons who received the delegation at one maternity hospital visited, in the "new city" of Sumgait, was a young woman, not a physician, who was introduced as a lawyer "responsible for protecting the rights of mothers and children." Such lawyers are attached to the women's consultation services in all maternity hospitals to ensure that the employers give both pregnant women and working mothers all the privileges to which the law entitles them.

MATERNITY CARE

Almost all births in the Soviet Union take place in maternity hospitals or, in rural areas, in the maternity sections of *uchastok* hospitals. In urban areas the figure for hospital deliveries is almost 100 per cent; in rural areas the figure is a little lower, but all obstetric patients receive trained medical care wherever they are delivered.

On several occasions the delegation was

told that the number of abortions performed is about the same as the number of births, and that in both types of cases the average length of hospital stay is the same (nine days). At the present time abortions during the first three months of pregnancy are legal in the Soviet Union, and though an attempt is made to dissuade the woman desiring an abortion, the choice is up to her.

Prenatal Care

Pregnant women are generally cared for by the women's consultation service at the maternity hospital, though they may still receive general medical care in the polyclinic. The gynecologists in the women's consultation centers that are parts of many (but not all) polyclinics are paid by the maternity hospitals for their areas, but these gynecologists do only diagnosis; women in need of treatment are referred to the consultation service at the maternity hospital.

The pregnant woman comes under regular care not later than the end of the third month; she is seen monthly until the end of the fifth month, and then every two weeks, if all goes well. There is good follow-up on women who do not report to keep their prenatal appointments. From the third month on, the pregnant woman is not permitted to work the night shift in her job, or to do overtime work. After the fifth month, she is transferred to lighter work, at no reduction

in pay, and is not permitted to work in any hazardous occupation. At seven months, the working woman is given 56 days of paid leave, and another 56 days post partum. Thereafter, when she returns to work, she may leave her baby in a "crèche" or nursery operated by the state, the industry, or the trade union, and is given paid time off at regular intervals to go and feed the infant. Regular bus service is provided for this purpose.

In prenatal care, great emphasis is placed on "conditioning" the mother to the events of childbirth, on the Pavlovian theory that this will help to make childbirth painless. The expectant mother attends classes of "psychotherapeutic education" four or five times during her pregnancy; at these she is taught how to behave during the delivery to reduce pain.

Labor and Puerperium

Most women are said to require no medication during labor, although analgesia is given if needed, including opiates, usually in the form of suppositories; and anesthesia is used as required during complicated births.

The average length of stay for normal deliveries is nine days, with ambulation generally beginning on the third or fourth day; for complicated births, the stay may be as long as 20 days. Complications, however, are said to be rare. All uncomplicated deliveries are done by midwives, under the general supervision of an obstetrician.

In the maternity hospital visited at Tbilisi, the delegation was told that the rate of premature births is low, about 6 per cent; cesarean sections are performed in 0.7 per cent of deliveries; about 10 per cent of the patients have some degree of toxemia of pregnancy; and the twin rate is 0.3 per cent. Home deliveries are done only in emergencies, and mother and child are then moved to the hospital. The usual age of primiparas at this hospital is 20 years, and the average size of

families is three or four. About 50 per cent of the mothers nurse their babies; this figure was said to have been higher in former years.

Care of Newborn Infants

Maternity hospitals have newborn nurseries, as in the United States. Most maternity hospitals also have nurseries for the care of premature infants until they can be discharged to their homes; only if they do not do well are they transferred to a special premature center elsewhere in the rayon or oblast. If such a premature center is accessible, however, pregnant women are instructed to go there for delivery in the event of early labor.



This newborn nursery with swaddled infants in bassinets crowded close together in a bare, sun-flooded room was typical of newborn nurseries seen by the delegation.

Wherever the delegation went, the newborn nurseries were crowded with bassinets placed very close together. At one maternity hospital 12 swaddled infants were observed in a single bed, being trundled down the corridor to their mothers for feeding. In another hospital the delegation saw infants being wheeled back and forth in large modern preambulators by nurses, in a sunny, airy, otherwise empty room; it was explained that "we don't want our nurses to handle them."

CARE OF CHILDREN

As soon as newborn infants leave the hospital with their mothers they become, medically speaking, the responsibility of the *uchastok* pediatric physicians in their home *uchastoks*. From this point until they are 16 years of age, their medical care is almost entirely separate from that of adults, in both polyclinics and hospitals. Even in small *uchastok* hospitals, where pediatric care may be given under the same roof as adult care, the children's departments are separated from the adult departments as completely as possible, sometimes by locked doors. There is usually a separate entrance to the pediatric department. In larger institutions where the children's hospital is a part of the adult hospital, it generally occupies a separate building. Its staff is also completely separate from the adult hospital staff and is made up of physicians and nurses with specialized training in pediatric medicine. (See chapter IV for discussion of children's hospitals.)

Nurseries and Kindergartens

Other child care facilities in the Soviet system are quasimedical in nature. These are the "crèches" or nurseries and kindergartens, located near the factories and collective farms, where the mothers return to work about two months postpartum. The nurseries and kindergartens are operated under the supervision of the rayon or city health department, though they may be built and maintained by the industry, the trade union, the collective farm, or other agencies in the community. The 1957 United States delegation reported that at that time there were crèches for fewer than 10 per cent of the pre-school children. Five years later another delegation gave the following account of this child care program:*

"The child care program consists of

nurseries and kindergartens near the factories where working mothers return to work eight to ten weeks postpartum. A nursery visited in Leningrad accommodated 125 children, three months to three years of age. There was a staff of 42, with two physicians, 21 nurses, and the 'serving staff.' . . .

"The mothers leave the children at the nursery in the morning or at the beginning of any shift and are given an hour twice during the day to nurse the babies. In addition to the children who are brought each day, 40 of the 125 were left in the nursery on a 24-hour, 5½-day basis, returning home on the weekend.

"The care of the children appeared to be excellent, with great emphasis given to group activities, group exercises, group calisthenics, even to the extent that three-month-old babies were being given passive exercises to condition them to participation with the group. All children received ultraviolet radiation during the day.

"Parents pay a small fee for the care of the children, ranging from 3.8 to 10 rubles per month. On graduation from the nursery, the children are placed in kindergarten until the age of seven. Here their routine is much the same, with heavy emphasis on calisthenics and group activities. The charge for kindergarten is from 4 to 13 rubles. Mothers with three or more children pay only half these costs.

"Medical care in the kindergarten consists of taking the temperatures each morning following calisthenics and a shower. Each Monday, the children are examined by the staff physician for any infectious disease. Once a month they receive a thorough medical examination, and twice a year a specialist visits for detailed examination."

*Organization of Health Services in the U.S.S.R.: A Report of the United States Delegation, November-December 1962 (mimeo).

VIII. POLYCLINICS

THE polyclinic system is the core of the Soviet health care system. Prevention rather than treatment is its primary goal, although the polyclinics are also centers for all outpatient care.

The polyclinics have their own staffs of medical specialists and provide various paramedical services, and the *uchastok* physicians, the family doctors of the Soviet Union, have their offices here. The polyclinic is the site of most of the preventive medicine—the mass screening examinations, the sanitary-epidemiological measures, the vaccinations and immunizations, and the “dispensarization” (follow-up)—on which the U.S.S.R. places so much reliance for improving and maintaining the health of its people. The authorities are convinced that if the polyclinics do their work well, there will be less and less need for inpatient care, because detection of incipient disease conditions will make it possible to prevent their further development or to treat them so as to shorten the length of future hospital stay.

THE POLYCLINIC SYSTEM

Utilization of Polyclinics

The delegation was told that in 1964 there were nine polyclinic visits per capita in urban areas. The rate was presumably lower in rural areas. It should be remembered

that the offices of all *uchastok* physicians are in the polyclinic, so all visits to a physician's office for any purpose are included in the figure for polyclinic visits. It was noted that 30 per cent of the population requires no services, “because they are healthy.”

Polyclinic hours are typically from 8 or 9 a.m. to 8 or 9 p.m. six days a week, with emergency coverage during the night—physicians on duty and ambulances and cars ready to go. On Sundays, a surgeon and an internist are on duty.

Location of Polyclinics

Some polyclinics are integrated with rayon or oblast hospitals; some occupy buildings within medical center complexes, though they are not actually integrated with hospitals; but most are independent and free-standing. Areas that are heavily industrialized often have special polyclinics and hospitals for the workers in the large industrial plants; sometimes families of workers are also cared for in these special facilities. The facilities, in these cases, are frequently built and sometimes maintained by the industry or by the trade union, but they are staffed by the Ministry of Health in the usual manner. Most factories have a health unit of some sort; this may be simply a *feldscher* post where first aid is available, or it may be staffed by physicians and nurses, so that screening and “dispensarization” of the workers can be done at the place of employment.

The chief of the Department of Planning and Finance at the U.S.S.R. Ministry of Health told the delegation that, although the interrelationship of the polyclinics and the hospitals was recognized in practice as well as in theory, the increased number of polyclinics being planned for the future would be located "near the people rather than near the hospitals." (In 1962 another U.S. delegation was told that in Leningrad no person was more than two bus stops away from the polyclinic serving his section of the city.)

Relationship of Polyclinics to Hospitals

Interrelationships between polyclinics and hospitals are of three types:

1. Outpatients requiring hospital care are referred to the hospital by the *uchastok* physicians or the polyclinic specialists. Twenty per cent of the polyclinic patients are referred in this way; they are returned to the polyclinic for care after discharge.
2. Although a patient transferred to the hospital is cared for by a member of the hospital staff, after the first two or three days of his hospitalization his *uchastok* physician is invited to confer with the hospital physician who is responsible for his care as an inpatient. Thus, continuity of care after the patient is discharged from the hospital is facilitated.
3. Interchange of polyclinic and hospital staffs occurs at regular intervals to enable them to keep abreast of each other's methods, even though the polyclinic physicians and specialists do not serve simultaneously on hospital staffs. Polyclinic physicians may also work in the hospital during their free time, on a voluntary basis.

POLYCLINIC SERVICES

Organization of Care in the Polyclinics

In the polyclinics, as in the hospitals, children's care is separated from adult care. The polyclinic is divided into *uchastok* departments for adults, each serving about 2000 persons from one *uchastok*, and *uchastok* departments for children, each serving about 900 children. When a newborn infant leaves the hospital with his mother, his record is forwarded to the polyclinic, and he is cared for there, in the *uchastok* department for his district, until he reaches the age of 16, when his record is transferred to the adult department for his *uchastok*. (Some large adult polyclinics have separate "kabinets" or offices for teen-agers.)

Also separate from the regular adult care in the polyclinic are women's consultation centers, staffed by gynecologists who do diagnosis only. About 8000 polyclinics are said to have such centers. Women who require gynecological treatment are referred to the women's consultation service at the maternity hospital.

Physician Services in the Polyclinics

The *uchastok* physician, the family doctor of residents of the *uchastok*, sees patients at his polyclinic office for three hours each day, about five patients per hour; for another three hours he makes home visits, about six per day. He is expected to spend the equivalent of about another half-hour daily in health education; elsewhere the delegation was told that this works out at about four hours per month. Much of this health education probably is given to individual patients during office and home visits. (See section on Health Education later in this chapter.)

As previously stated, there is essentially no free choice of physician, because the *uchastok* physician is assigned on a geographic

basis and all the residents of his uchastok are his patients. The delegation was told, however, that in case of conflict of personality between the patient and the physician (said to be a rare occurrence) it is possible, though difficult, to change.

The uchastok physicians have available the services of the teams of specialists in internal medicine, surgery, otorhinolaryngology, urology, oncology, infectious diseases, etc., with which the polyclinics are staffed. The number of specialties represented varies with the size of the polyclinic; in smaller polyclinics consultation with specialists on the staff of the rayon hospital is available on a regular basis. Generally, the specialists and consultants see patients in the polyclinic, but they also make home visits when necessary. Supportive services at the polyclinic include dentistry, diagnostic X-ray and fluorography, clinical and chemical laboratories, physiotherapy, blood bank, etc. There are usually minor surgery rooms.

Medications

Although all drugs are free to inpatients, most polyclinic patients pay for the drugs prescribed for them, which they purchase at the polyclinic pharmacy for a nominal charge. Medication is free, however, for persons with tuberculosis and diabetes. Disabled veterans pay only 40 per cent of the cost of the drugs they purchase. Children under one year of age receive all medicines and infant formulas free. The number of drugs for which no charge is made is said to be increasing.

SCREENING AND "DISPENSARIZATION"

The polyclinic is the center of the screening and "dispensarization" activities on which the Soviet health system relies so

heavily to keep the population well. The ultimate goal is to provide an annual physical examination for the entire population to discover any conditions requiring treatment or continued observation, and to follow up all patients having such conditions. The process of follow-up, which is carried on in the polyclinic by the uchastok physicians and also in so-called "dispensaries" for cancer and tuberculosis, is known as "dispensarization." At present, persons in all age groups are screened annually for tuberculosis; persons over 30 years of age are screened annually for cancer or precancerous lesions; and workers in especially hazardous industries are screened once and sometimes twice a year for occupational diseases. The goal is to extend these special examinations to the entire population and to broaden the scope of the annual examinations so as to discover all disease conditions that may be present.

Disease conditions that are subject to dispensarization include not only cancer and tuberculosis but also such diseases as arthritis, hypertension, stomach and duodenal ulcer, cardiovascular disease and cardiac defects, central nervous system disorders, and diabetes. When the disease is identified, the patient visits the appropriate specialists, who prescribe treatment, diet, type of work that is suitable, and a schedule of reexaminations for follow-up. Notices are sent to patients who do not report promptly for their appointments. In the large city polyclinic integrated with Leningrad City Hospital No. 2, the delegation was told that the entire polyclinic spends two days per month on dispensarization.

The coverage of dispensarization procedures was indicated by figures given to the delegation in the "new city" of Sumgait, Azerbaijan. Sumgait has 12 uchastoks, each with about 3000-3500 population; and in each there are from 100 to 120 patients under dispensarization—a total of 1200 to 1500 patients receiving this type of service, out of a total population of approximately 50,000.

The delegation learned something about the system of cancer dispensaries during its visit to the Institute of Experimental and Clinical Oncology of the Academy of Medical Sciences in Moscow, although it did not visit any dispensary. The cancer control program started in the Soviet Union after World War II, with the determination of government policy to establish special oncologic services throughout the country. The need for various medical specialties in oncology was recognized, and oncology dispensaries began to be built; i.e., dispensaries in the Russian sense—specialty clinics that included not only outpatient services with specialty consultations, but also inpatient facilities of 100 beds or more, plus cancer registries to facilitate the study of morbidity and mortality. The plan provides a thorough follow-up service, and the facilities include diagnostic X-ray and also radiotherapy, which is not available in the polyclinics and general hospitals.

Many polyclinics have oncology "kabinets" or offices which make special arrangements for consultation and follow-up. There are now more than 250 oncology dispensaries and more than 1500 specialized oncology "kabinets" in polyclinics, and more will be added.

Each Republic also has a specialized cancer institute; data gathered by the dispensaries and the polyclinics are reported to these, as well as to the central oncology institutes in Moscow and Leningrad. Each institute offers specialized training in oncology to practicing physicians through the Institutes for Advanced Training of Physicians. More than 3000 physicians have taken these training courses and have received diplomas as "oncologists." The delegation was told that, although these "oncologists" are still practicing surgeons and internists, they have been sensitized to the problem of cancer and "have oncologic minds."

There are similar dispensaries for the out-of-hospital treatment of tuberculosis. The other disease conditions that are dis-

pensarized are handled in the general polyclinics.

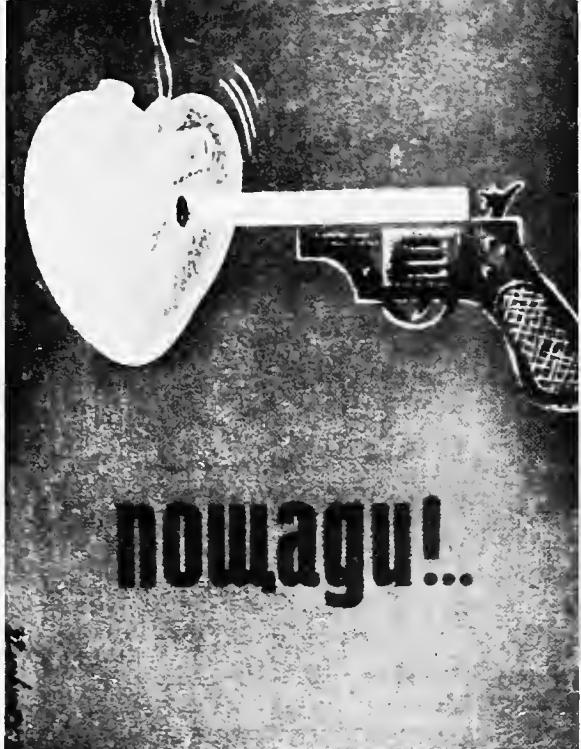
Rehabilitation and Job Placement

One of the elements of dispensarization is the placement of patients with various disease conditions in suitable jobs. A special Institute of Occupational Diseases establishes criteria of suitability—the types of jobs that can be done by various types of patients; it presumably does job analyses and studies job requirements, and was said to include many disciplines. (Anthropometry was one that was mentioned.)

In Baku the delegation met a woman physician who was introduced as a specialist in charge of rehabilitation and preventive medicine. Her department, in the polyclinic of the Caspian Sea transport workers' hospital, was said to serve a wide range of professional, mechanical, and other workers. The specialist participates in committee deliberations on selective placement of employees who are under dispensarization, and performs an annual review of "prophylactic measures," with special attention to occupational hazards such as heat, noise, and noxious chemical substances. The jobs selected for patients under dispensarization may be either temporary or permanent, according to their conditions. For example, women in the second phase of pregnancy are transferred from any hazardous occupation until their maternity leave begins; when they return to work post-partum, they may return to their former jobs unless there are contraindications. In some occupations women are not permitted to be employed at all, and these are determined by this department.

Health Education

Health education of the public is an important feature of the Soviet health system. An obvious goal is to secure the cooperation



It is not necessary to read Russian in order to understand this excellent health education poster on cigarette smoking. Posters like this are displayed conspicuously in waiting rooms and on corridor walls of polyclinic buildings, as part of the health education program in which every physician is required to participate.

of the healthy public in the mass screening and dispensarization endeavors. It is carried on not only in the polyclinics but also in the hospitals, homes, schools, factories, and wherever the physician goes.

Every physician is required to participate in the health education program, and this activity may take many forms. Some of these are: talks with patients during consultations or during home visits; question and answer sessions and individual or group talks to patients in the hospital wards; explanations of prescribed treatments to patients in the treatment rooms; talks with members of the patient's family and with their neighbors as they are met in the patient's home; instruction of family members regarding preparation of a prescribed diet; radio or television talks; lectures and demonstrations or presentation of slides in recreation and reading halls; and organization of group "prophylactic consultations."

The delegation was impressed with the excellence of some of the health education posters that were seen on the walls of polyclinics and uchastok hospitals.

IX.

EMERGENCY SERVICES

THE network of emergency services that covers the Soviet Union is one of the features of the health care system of which the authorities—and the public—are proudest; and with good reason.

The delegation visited the Central Emergency Service Station in Leningrad. This is one of the largest and most sophisticated in the country, but its functions are similar to those of all emergency stations throughout the country. The Leningrad station was organized as an independent establishment in 1918, immediately following the revolution; prior to that date, emergency services were attached to the fire department or the home visiting services. The station serves a city of four million population, performing the following functions:

1. **Emergency care of accidents or sudden illness occurring in the streets or at work. (In cases occurring at home, the calls are usually answered by emergency teams working out of polyclinics, or by uchastok physicians.)**
2. **Transportation of patients from home, polyclinic, or accident scene to the hospital.**
3. **Transportation of pregnant women to maternity hospitals.**
4. **Inquiry service—a sort of “missing persons bureau.”**

The emergency service telephone num-

ber is the same throughout the Soviet Union: “03.” In Leningrad any “03” call comes into this central station, which has 15 trunk lines and a direct line to police and fire departments, and is relayed to one of the 11 rayon emergency stations in the city. If there is anything unusual about the initial call, it is transferred to a physician (one is on duty around the clock) for a decision on the action to be taken. The central station is thus essentially a communication center for receiving emergency requests and dispatching needed assistance.

Each of the local rayon emergency stations has 6 to 20 ambulances, which have a two-way radio hook-up with the rayon stations. If an emergency call is for transportation only, two feldschers are sent with the ambulance, or two midwives, if the call is on a maternity case. For other types of emergencies, there are four types of emergency teams to be dispatched with the ambulance: cardiovascular; central nervous system; trauma, shock, and resuscitation; and psychiatric. Each of the first three types consists of a specialist and two feldschers; the last, of two physicians. The ambulances are supplied with equipment for emergency care (electrocardiograph, defibrillator, intravenous equipment, etc.), so that treatment can be begun on the way to the hospital.

The rayon emergency stations are so located that an emergency team can reach a patient anywhere in the city within six or seven minutes, and convey him to the hospi-

tal in about the same length of time. Rayon hospitals accept emergencies in rotation on assignment; in addition, all hospitals in the city report to the Central Emergency Station daily the number of vacant beds they have available, and patients are accordingly referred to the nearest hospital that can accept them. Complicated cases are referred to the Institute for Emergency Care, under the city health department; it has 600 beds and accepts 9 to 13 patients daily. This institute is especially interested in cases of myocardial infarction and trauma with shock, and in acute pancreatitis and acute cholecystitis. It is carrying on new forms of treatment and serves as a teaching institution for rayon physicians. Burn patients are sent to a special unit in the Military Medical Academy hospital, which receives such cases from all over the country.

The Central Emergency Station controls 200 physicians and 1000 feldschers; 70 per cent of the physicians on this service, as elsewhere in the Soviet health care system, are women. The emergency service attracts younger physicians and feldschers of both sexes, both because of the excitement involved and because the service provides valuable experience in accident work. The daily traffic of the central station is said to be about 1500 calls in winter (one third for emergency teams and two thirds for transportation, including that of pregnant women) and about 900 in summer (about half for emergency teams and half for transportation).

The central station is in the city health department building, which was in the midst

of repairs when visited. The delegation found the communications center most impressive. It has four or five rooms, with soundproof ceilings and walls and rubber tile floor. A physician is on duty at all times, with other members of the staff manning the telephone switchboards and radio. Four operators are assigned to receiving calls and dispatching emergency teams; six to making arrangements to transport patients from polyclinics to hospitals; and four to handling calls of uchastok physicians requesting transportation for patients. Paramedical personnel keep records of calls and of the disposition of cases, using a time stamp.

A large room is provided for records which are maintained with a color-coded filing system. The delegation saw cards being marked manually for statistical records; they were told that punch cards are used elsewhere. Records are kept at the central station for two years and then are sent to archives.

The delegation formed the impression that the center functions efficiently. Inasmuch as all sources are under the command of the city health department, the method of assigning cases to specific hospitals on call each day appears to be an effective manner of utilizing resources.

Because of the regionalization of the hospital system, the same type of emergency service is available to all, anywhere in the Soviet Union. In some remote areas airplanes and helicopters are used to transport both emergency teams and patients.

X. RESEARCH INSTITUTES

LITTLE or no research is carried on in the ordinary Soviet hospitals or by any Soviet physicians other than those who are specifically trained in research and who work in the research institutes. As had been noted, there are 27 of these research institutes under the U.S.S.R. Academy of Medical Sciences, others under the U.S.S.R. Ministry of Health and under the Academies and the Ministries of Health of the several Republics. Hospital records, other than those of hospitals attached to the institutes for specific research purposes, are not utilized to any extent in research activities at the present time.

The delegation also saw little evidence of the impact of medical research on hospital care, and in general gained the impression that laboratory research is not as much a part of hospital and medical practice in the Soviet Union as it is in the United States. There is also a dissociation between research and medical education at the undergraduate level, a matter that is of concern to some of the Soviet medical planners.

The delegation visited five research institutes to learn just what these institutes do and how they do it. At the first institute visited in Moscow, the Semashko Institute of Public Health Organization and History of Medicine, the director briefed the delegation on the general organization of Soviet health care; the content of this orientation session has been incorporated into the earlier sections of this report.

Among the other institutes visited were

two of the most distinguished medical organizations in the Soviet Union, both located in Moscow—the Vishnevsky Institute for Thoracic and Cardiac Surgery and the Blokhin Institute of Experimental and Clinical Oncology. The other two were Republic research institutes: The Institute of Traumatology and Orthopedics of the Russian Socialist Federated Soviet Republic, in Leningrad; and the Uzbekistan Institute of Physiotherapy and Curatology, located in Tashkent, one of the historic population centers of southwest Asia.

INSTITUTE FOR THORACIC AND CARDIAC SURGERY

At the Vishnevsky Institute for Thoracic and Cardiac Surgery, the delegation was received by Professor Vishnevsky, the present director and the son of the founder. Professor Vishnevsky is a vigorous personality; he held a top-level position in the medical corps of the Soviet Army during World War II, and is an internationally known cardiac surgeon, who has visited in the United States. He was enthusiastic and cordial in receiving the delegation, and seemed eager to show his institution, including a model of the modern 17-story steel, glass, and aluminum building, now under construction on an adjacent site, which will be the future home of the institute.

The delegation had expressed special in-



This model of the new modern building now under construction for the Institute for Thoracic and Cardiac Surgery in Moscow was on display in the office of the director, Professor Vishnevsky. It may be an indication that Soviet planners are beginning to turn away from their rigorously standardized concrete block construction.

terest, when its itinerary was being drawn up, in the application of automation and computers in Soviet hospitals, and had been told that there would be an opportunity to observe this at Professor Vishnevsky's institute. Professor Vishnevsky said that his institute had been very much interested in cybernetics from the viewpoints of (1) regulation of physiologic function, for example in the "automation of narcosis and the heart-lung apparatus"; and (2) diagnostic systems, in which, in his judgment, real progress has been made. It was evident that computer applications were confined to clinical rather than administrative medicine.

The delegation was shown the computer set-up that was being used by the institute's researchers, and the methodology of its use in analyzing symptoms and signs of cardiac disease for differential diagnoses was described. The computer was of a large vacuum-tube type not now used in the United States. A color film showing the differential diagnosis process carried out by the com-

puter was exhibited later in a small, crowded auditorium.

The delegation also visited several experimental laboratories, modest in size, appearance, equipment, and number of workers. (It must be remembered that the delegation's visit was at the height of the summer vacation season.) Various studies were under way on such subjects as the action of procaine and other substances on single nerve fibers; the use of the laser beam in heart surgery and for abdominal cancer; and "some interesting possibilities concerning the use of fibril optics in catheters." There were the usual animal laboratories. No surgery was being done that day, but the delegation saw a film of an open-heart operation, which appeared to be well done, with before-and-after pictures of the patient. Three patients who had been operated on the previous day were seen in a postoperative ward; they were surrounded by staff and equipment.

This institute was said to be one of three centers in the Soviet Union for the treatment

of very severe burns; there is another in Leningrad and one in Kiev.

Although the buildings, equipment, and wards of this distinguished institute could be described as obsolete and drab, it should be remembered that the 17-story addition now being constructed to the specifications of the director and his staff will provide 300 beds, operating rooms, and laboratory facilities, with presumably new and modern equipment. Professor Vishnevsky was well aware of the deficiencies of the present set-up, and told his guests of the many institutions he had visited in the United States and Western Europe.

INSTITUTE OF EXPERIMENTAL AND CLINICAL ONCOLOGY

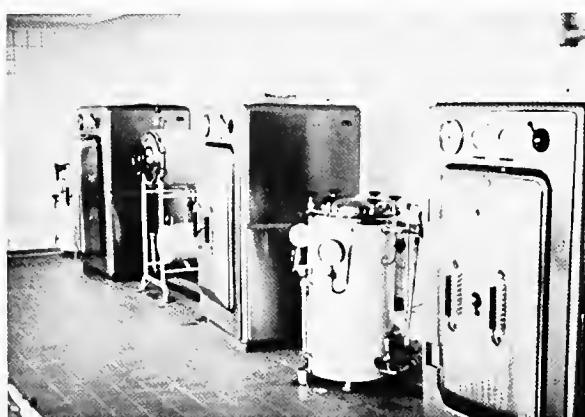
One of the most renowned medical institutions in the Soviet Union is the Blokhin Institute of Experimental and Clinical Oncology in Moscow, the central institute for cancer research for the U.S.S.R., which was the last stop on the tour of the delegation. (There is a second oncology institute in Leningrad, under the U.S.S.R. Academy of Medical Sciences, and a third, also in Moscow, under the

Russian Federated Republic.) Dr. Blokhin, the institute's director, was absent on the day of the delegation's visit, and the Americans were received by the deputy director, Dr. Chacklin, who is also chief of the cancer epidemiology division, and the chiefs of the general surgery and clinical chemotherapy division. All of them spoke excellent English, so this meeting could be conducted without the assistance of the interpreter; several of them were already acquainted with members of the delegation as a result of visits to the United States.

The development of the cancer control program in the Soviet Union was outlined by the deputy director; this information will be found in the section on dispensarization in chapter VIII. The Blokhin Institute was founded about 10 years ago to concentrate on chemotherapy as a treatment for cancer. Several good chemotherapeutic agents were produced in the laboratories; but meanwhile it became apparent that the work could not be limited to experimental chemotherapy, and the institute's assignment was broadened to include surgical and X-ray treatment as well. It also branched out into additional studies in the etiology and epidemiology of cancer.

The institute consists of three large, new connected buildings. Two had opened in early 1965; the third, which will house the radiation therapy center, was not yet completed. The institute has a staff of 1000, and it will have 400 beds—40 beds for each of the following specialties: hematology, radiotherapy, gynecology, endocrinology, thoracic surgery, general oncology, abdominal surgery, urologic surgery, chemotherapy, and chest and neck surgery. All clinical laboratories such as biochemistry, bacteriology, anesthesiology, cytology, and pathophysiology are located in the building where the delegation was received.

The institute participates in the work of a commission concerned with the need for special emphasis on and coordination of var-



The sterilization rooms in the just-opened Institute of Experimental and Clinical Oncology in Moscow had tiled walls and floors and the most modern stainless steel sterilizers, ovens, and stills.

ious parts of the cancer program. The work in experimental oncology has many divisions including viruses, immunology, carcinogenic factors, laboratory biology, and laboratory genetics. The epidemiology branch, of which the deputy director is chief, is divided into the following sections: epidemiology, medical statistics, public health aspects, and information.

The outpatient department of the institute accepts patients only for research studies. These patients are referred for consultation and treatment by physicians in cancer clinics over a wide area. The delegation was impressed to learn that every precancerous lesion discovered in screening examinations or routine practice is reportable, and that for a physician to fail to report it is a serious offense. The institute periodically circulates letters to advise physicians of the types of tumors in which it is particularly interested; for example, a study of seminomas was under way at the time of the visit.

A special effort is being made to introduce an understanding of the problem of cancer into the teaching programs of the medical schools by establishing special chairs of oncology. Such chairs now exist in 10 schools, but opposition has been encountered from certain specialists, who object to broad oncology teaching, as has commonly been the case in every country. The institute is endeavoring to get more postgraduate teaching of oncology into the Institutes for the Advanced Training of Physicians, and it is always on the lookout for medical students in the fourth, fifth, and sixth years who have an interest in and aptitude for research; such students are encouraged to do work at the institute on their own time. Well-qualified *ordinaturs* and *aspiranturs* are sought; 100 candidates competed in a recent special examination given to applicants after two years of general practice. Those accepted for graduate training in oncology begin their studies in institutes and cancer dispensaries of the Republics. On completion of their studies

they may apply for posts at the institute in Moscow.

The basic science laboratories of the institute, which occupy an area of many thousands of square feet, were mostly small, one-man affairs, and they seemed very quiet—again, presumably, because it was the summer vacation period. In one room visited, a lecture was being given to physicians in the postgraduate course.

The delegation visited the central pharmacy, a large suite of rooms occupying one wing; it was large, airy, and reasonably modern, in contrast to most of the pharmacies encountered on the tour, though the storage cabinets of which pharmacists are usually so proud were not of the most modern design. A separate room for preparation of sterile drugs had very modern sterilization and distillation equipment, with an apparatus for preparation of intravenous solutions. The central sterile supply department also had modern stainless steel sterilizers, ovens, and stills. Metal drums were used to sterilize dressings.

The deputy director observed that the delegation was seeing "routine laboratories"; the research laboratories were in another building. The equipment of the laboratories seen was simple but adequate, mostly a combination of old and very new. In general, the visit confirmed the delegation's impression, gathered throughout the tour, that routine laboratory services in hospitals are minimal; yet these were the best-equipped of all the laboratories that had been seen.

The nursing units of the institute's hospital had 40 beds per unit, and were built on a modified double-corridor plan. The staff of a 40-bed unit consisted of a chief, a senior research director, and four junior research physicians, plus various *ordinaturs* and post-graduate physicians. A typical ward unit was divided into two sections, one for male patients and the other for female patients. There were two postoperative recovery units of 20 beds each, with a central, glass-walled

nursing station. In contrast with most of the hospitals visited, which had five to seven beds per room, this one had only two to four. The facilities were very good, with piped oxygen, call bells, intercommunication system, etc. The ward had shielded ultraviolet lights, which were not turned on and were said to be used only when there were no patients present. The rooms had no lavatories, and as in other hospitals the bedsteads were nonadjustable. The door frames were protected by rubber shields.

The very new buildings of this institute were imposing in appearance, with an attractive exterior of tan-colored brick and modern design. The quality of construction was certainly not the highest, and maintenance was poor, but in general the buildings were the best seen on the tour. Internally, an attempt had evidently been made to incorporate ideas from many sources.

This institution, which has as much prestige as any medical organization in the Soviet Union, obviously had been granted a

large budget for construction of a modern facility. Nevertheless, a nation that had proved itself capable of space exploration and of construction of excellent aircraft, ultramodern airports, magnificent subways, and some beautiful official buildings, had not yet managed to put its best skills into the design and construction of a special research institute for some of its most distinguished medical scientists.

INSTITUTE OF TRAUMATOLOGY AND ORTHOPEDICS

The Institute of Traumatology and Orthopedics in Leningrad is operated by the Ministry of Health of the Russian Federated Republic. Several similar institutes are in the Republic, each serving several oblasts. This is the central one and serves 17 oblasts in addition to providing some services to the entire U.S.S.R. (See the section on bone and tissue banking in chapter VI.) It also participates in the Leningrad emergency service, receiving all the city's trauma cases two days each week. It has 200 beds, and a large department that establishes the "methodology" for the trauma units of the rayons. The delegation was told that a conference is held twice a year for physicians from other traumatology institutes of the Republic, and there are training courses for physicians from the Institute for Advanced Training of Physicians, who come in groups of 25 for periods of about two and a half months. The institute has 330 personnel, including 46 physicians, 136 nurses, and 154 other workers, and four clinical departments: surgery, rehabilitation, orthopedic (adult), and maxillofacial. The surgery department consists of one or two senior scientific workers, one *ordinatur* (serving two years), and five or six *aspiranturs* for the degree of Candidate in Medical Science; other departments are comparably staffed.



The operating room at the Institute of Traumatology and Orthopedics in Leningrad had a high ceiling and brilliant daylight, as well as excellent operating room lights. The operating tables were new, but were swathed in sheets, inasmuch as this was summer vacation time and little surgery was being scheduled.

When this institute was established, in 1908, it had only 60 beds; it is still in the original building today, now enlarged to 200 beds, but new construction, for experimental laboratories and tissue bank storage, is under way. The average length of stay in the hospital is 25 to 30 days. Some patients return for follow-up in a special section of the outpatient department, and others are followed in local trauma units.

The operating room seen during a tour of the building resembled old-fashioned German operating rooms, with high ceiling and brilliant daylight. There was an excellent operating room light with a center television camera, and four ultraviolet lights, unshielded. The three operating room tables, including one special orthopedic table, were all new. There was a panel on the wall for central supply of anesthetic gases, and provision was made for emergency electrical power. In an adjacent room, a member of the staff was working with a limb perfusion apparatus.

One fracture ward was seen that had 10 beds, with stainless steel bedsteads, and makeshift orthopedic frames and traction apparatus made of iron pipe. There was a lavatory basin and the beds had nurse call buttons, but there were no cubicle curtains. The wards might have come out of the history books, but the impression was gained that the orthopedic care was very good, and certainly the staff was proud of its work.

000 rubles. The staff consists of 515 employees, of whom 30 are "scientific workers" and 60 are "laboratory workers." No medical students are taught here, but physicians are assigned from the Institute of Advanced Training for Physicians for a two-month course, which it is planned to increase to five months. The medical schools do not teach "curatology" and "balneology"; this institute provides training in these subjects for physicians who wish to work in the sanatoria.

The delegation was told that study of the mineral water resources of the Tashkent area had led to the development of the institute, in which medicine cooperated with other scientific specialties, such as hydrogeology, geophysics, and climatology. The director said that in all the oblasts there are such groups studying climate, and about 35 different types of mineral waters; he added that "Tashkent waters are famous."

There is now one sanatorium of 600 beds, built and operated by the trade unions; another 1000-bed sanatorium is under construction. The delegation was told that the trade unions would spend 18 million rubles for additional sanatorium beds over the next five years; the objective for this area is two sanatorium beds per 1000 population. The institute must approve the proposed locations, and the sanatoria are staffed by the Republic Ministry of Health, but salaries are paid by the trade unions.

The architect's plan for the enlarged institution impressed the delegation as a combination of several Saratoga Grand Union Hotels. The bath department was similar to such departments at Saratoga and French Lick, and also to those in Western Europe, for example at Baden-Baden.

The average length of stay at the institute is 26 days; however, patients in the 60 beds allocated for the use of scientific investigators may stay for two months. The admission procedure involves three days of clinical check-up for confirmation of the diag-

INSTITUTE OF PHYSIOTHERAPY AND CURATOLOGY

The Institute of Physiotherapy and Curatology in Tashkent was established in 1919 as a small physiotherapy hospital. It now has 320 beds (divided among cardiovascular diseases, rheumatism, enterology, neurology, and gynecology), with clinical and biochemistry laboratories, and additions are currently being made to the buildings at a cost of 500,-

nosis, after which treatment is begun. Methods of treatment are:

- **Balneology or hydroionization (with positive and negative ions; the institute has been working with this method since 1932).**
- **Mineral waters.** There are 11 artesian wells in Tashkent, the temperature of the waters ranging from 53 to 65 degrees C.; the waters are also activated with various gases for certain types of therapy.
- **Heliotherapy.**
- **Mud packs.**

A tour of part of the sanatorium showed long corridors with rooms on both sides, each containing two beds; the rooms were flooded with brilliant sunshine, and contained only a simple bedstead and a chair for each occupant. All the rooms had washbasins, something that was not observed anywhere else on the tour, and each also had its own balcony. The delegation was told that a new facility under construction would provide sunbathing as one form of heliotherapy.

The X-ray room had two simple diagnostic machines, resembling equipment of about 1930. The hydrotherapy area included facilities for duodenal lavage and colonic irrigation; sunken tubs, tubs in which oxygen and other gases bubbled through the water, and tubs for massage with water pressure hoses in a sort of whirlpool; and Scotch

douche ("Charcot shower"). New facilities for mud pack therapy were being built.

In the physiotherapy area the delegation was shown various machines for electrical treatments: diathermy; short wave and ultrashort wave therapy; galvanic current; microwave therapy in a shielded room; infrared and ultraviolet irradiation (including one machine especially for ultraviolet irradiation of the oral cavity); static electricity for "hypertension, neurosis, and headache"; an ultrasonic machine; "doudynamics of Bernard" for "electric diagnosis and electric stimulation"; electrophoresis; and galvanization and faradization. In one special room there was a "Fotarion," a large pedestal in the center of the room to provide ultraviolet irradiation of the total body as patients walk around it in a circle. There was also an aerosol device that was said to provide treatment with antibiotics, adrenalin, etc., and that is also used "for the treatment of angina." On exhibit as a museum piece was a 1921 galvanic-faradic stimulation apparatus, used in the training of physicians.

The institute had a small library. The auditorium, used for conferences and for recreational purposes, was large, light, and attractive. The teaching classroom was adequate. There was a rather pleasant dining room with a large number of tables for four, laid with the very attractive blue Tashkent ceramic ware. Virtually all the patients in the sanatorium were ambulatory and were served their meals in this room.

Detailed Notes on Selected Interviews and Visits

appendix A

MOST of the observations of the delegation during their institutional visits—observations regarding staffing, organization, hospital statistics, physical facilities, etc.—have been incorporated into the body of this report. In some cases, the details of some of these visits were not reported because they were repetitious or did not fit into the pattern of the report. It was believed, however, that since a full account of these specific visits would be of interest to some readers that it should be presented in the appendix.

Included in this appendix is a report of the delegation's visit to the Ministry of Health of the Republic of Uzbekistan, indicating the wide range of information that was furnished by the officials encountered on the tour. Following that report are descriptions of the medical organizations of the two "new cities" of Rustavi and Sumgait, of several hospitals of differing sizes and types, and of three polyclinics.

Since no member of the delegation could read, speak, or understand the Russian language, nearly all information was communicated verbally and through an interpreter. In a few instances charts were presented in English or in figures, which did not require translation.

1. REPUBLIC MINISTRY OF HEALTH

Ministry of Health, Tashkent, Uzbekistan

Those present for the delegation's visit to the Uzbekistan Ministry of Health were the Minister of Health and several members of his staff, including the chief city health officer; the deputy to the chief of the Medical Department; the chief of the Department of Statistics; the chief of the Department of Sanitation and Epidemiologic Planning; the deputy chief of the Department of Planning and Finance; the director of the Uzbekistan Institute of Public Health Organization; and the chief pediatrician of the Ministry of Health. The chief physician of the industrial medical center of the Tashkent textile combine, which the delegation visited subsequently (see item 5 of this Appendix), was also present.

The departments of the Uzbekistan Ministry of Health are:

Department of Curative and Preventive Medicine for Adults

Department of Curative and Preventive Medicine for Children
Department of Sanitation and Epidemiology
Department of Planning and Finance
Department of Statistics
Department of Construction
Department of Pharmacy
Department of Accounting and Medical Supplies
Department of Personnel and Medical Education (including Paramedical)

The Minister of Health has a Council ("Collegium") of Health that deals with major problems. Its nine members include the chief city health officer, the department heads, and the three deputies of the Minister; the Minister serves as chairman. The Ministry of Health also has a scientific council that advises on scientific problems. The Minister serves on the Uzbekistan Council of Ministers; the present Minister happens also to be a member of the 458-member Republic Parliament, to which he was elected for a four-year term.

The delegation was given a considerable array of statistical facts about the Republic and its health programs, both present and past.

The Republic of Uzbekistan has an area of about 170,600 square miles and a population of 10 million, with a birth rate of 36.1 per 1000 population and a death rate of 5.7. Agriculture is well developed. Sixty-six per cent of the cotton grown in the U.S.S.R. comes from Uzbekistan, and so does 88 per cent of the jute and 55 per cent of the silk. There is also a great Astrakhan sheep-raising program. Industry is now being promoted, and 1300 industrial products are being turned out by more than 100 branches of industry.

The historical development of health programs and health facilities and personnel are matters of great pride, and the increases since 1914 are remarkable. Total health expenditures in 1914 amounted to 0.14 rubles (14 kopecks) per capita, whereas the 194 million ruble health budget in 1964 provided 19 rubles per capita. The current five-year plan calls for an expenditure of 85 million rubles for construction of new medical establishments alone.

In 1914 the Republic had 102 physicians and 234 paramedical personnel. This amounted to one physician per 50,000 population. There were 65 outpatient departments, 33 pharmacies, and 976 hospital beds, or 0.2 beds per 1000 population. There were no women's consultation services, no children's consultation services, and no specialty services.

In 1965, Uzbekistan had 14,500 physicians and 45,000 paramedical personnel —one physician per 676 population; and there are three medical schools and 12 paramedical schools, as well as several pharmacy institutes and Institutes for the Advanced Training of Physicians. There are 1154 hospitals and 90,000 beds; this includes 780 hospitals with 35,000 beds in rural areas. There are 313 women's consultation services in oncology, ophthalmology, tuberculosis, etc. There are also 703 pharmacies, and there are pharmaceutical factories, including one under construction at the present time for galenicals or standard preparations.

Uzbekistan has 11 Institutes of Medical Research, with their own dispensaries and beds. These institutes do research and establish methodological stand-

ards for patient care; they also provide specialty consultation services.

The medical schools of the Republic have 12,000 students; the paramedical schools have 11,000. In the three medical schools and 11 research institutes there are 1000 research workers, of whom 661 are Candidates in Medical Science and 103 are Doctors of Medical Science. In the pharmacy service organization there are 3000 pharmacists and assistants.

There is a network of sanatoria and rest homes for adults and children.

Each year the budget of the Republic increases, as indicated by the fact that the 1965 health budget was up to 226 million rubles, a 15 per cent rise over 1964. Other budgets—for education, culture, sciences, etc.—are climbing comparably. The Republic now has 33 universities, and there is increasing collaboration between the medical institutes and the universities in physics, biology, and chemistry. The medical institutes are also collaborating more and more with the Republic's Academy of Science, which was said to have two Russian "laureates," both in medicine. (The translation was uncertain at this point, but the delegation gained the impression that Uzbekistan has no Academy of Medical Sciences.) The Academy of Sciences has departments of biology, botany, physics, chemistry, etc., and the Council of Ministers has a special committee to encourage collaborative programs.

The delegation was told that malaria has been eradicated from the Republic, as have many other communicable diseases. A major problem today is to establish larger hospitals. The plan is to build rayon hospitals of not less than 300 beds and uchastok hospitals of not less than 50, preferably 75 or more. The budgets for both construction of facilities and operation of the health maintenance programs are supplemented by contributions from collective farms and industrial organizations. It is hoped that with this additional financial assistance the Republic will be able to move forward relatively soon with the program for the enlargement of rural hospitals.

2. "NEW CITY" HEALTH FACILITIES AND SERVICES

Rustavi, Republic of Georgia

The "new city" of Rustavi was founded during the war, in 1944, in connection with the establishment of a metal works; it was named in 1948. It now has a population of 100,000. The City Health Department operates all medical facilities of the city, which provide a total of 1030 hospital beds. These facilities are:

- The city hospital for adults.
- An industrial hospital with integrated polyclinic for workers in the industry. (Families of workers go to the city hospitals, and workers may do so if they request it.)
- A children's hospital.
- A maternity hospital, with a women's consultation service.
- A tuberculosis dispensary with an inpatient department.

- A communicable disease hospital.
- Three separate polyclinics, two for adults and one for children.
- Emergency medical service.

The original planning for the “new city” provided for health units in the factories to serve industrial workers, in addition to hospitals. Another city hospital is now being planned for the other side of the river, because of the continuing growth of the city in that area. A traumatology hospital is already under construction, adjacent to the present city hospital.

The city hospital’s 300 adult beds are divided among the following departments: internal medicine, 105, including 20 neurology; surgery, 80, including 10 urology, 10 ear-nose-throat; trauma, 50; and communicable diseases, 60.

The hospital also has a blood bank that serves the entire city, and an X-ray department, clinical diagnostic department, biochemistry laboratory, bacteriology laboratory, electrocardiography department, and physiotherapy department. Its staff totals 310, including 38 physicians, 98 nurses, 110 “juniors” or ward maids, 10 laboratory technicians, and 64 others. There are 15 fourth-year medical students in training, and two paramedical students, but no *ordinaturs* (residents). The hospital has no attached polyclinic. (Physicians from the city’s adult polyclinics are assigned to work in the hospital for a period of time each year, and the hospital physicians are assigned as specialists to the polyclinic.)

A tour of the city hospital showed that it had the same standardized ward design that had been found elsewhere in the Republic. The wards were freshly painted, with some stencilled decorations on the walls. Floors were parqueted. Piping and electrical wiring were exposed. In the operating suite, the portable operating light was new, modern, and very good; the operating table was new, relatively simple, and of an adjustable type. The X-ray department had two diagnostic units that, in appearance at least, resembled X-ray apparatus that might have been seen in U.S. hospitals in the 1930s.

The total annual budget of this hospital was reported as 400,000 rubles—1330 rubles per bed, or approximately 3.65 rubles per patient day.

The blood bank center, adjacent to the hospital, was described in some detail in chapter VI.

The adult polyclinic in Rustavi serves eight uchastoks, each of which has its own physician with offices in the polyclinic: the uchastok physicians and nurses make home visits when they are needed. A team of consultants provides coverage of all medical specialties for all the uchastoks. The polyclinic staff totals 85 physicians, 12 feldschers, and 86 other paramedical workers. Its budget is 500,000 rubles per year; this includes the salaries of the uchastok physicians.

The polyclinic had three departments of internal medicine, each with its own chief, and one department of surgery, with subspecialties in urology, oncology, gynecology, otorhinolaryngology, etc. The polyclinic’s chief physician had a medical deputy and a deputy for rehabilitation. Supporting services included X-ray, laboratory, electrocardiography, and physiotherapy.

The polyclinic presented the appearance of a poor but very busy county hospital outpatient department. The equipment was simple and minimal. There were two minor surgery rooms, one for “clean” and one for “dirty” cases. A physiotherapy room had two old-fashioned diathermy machines, several ultraviolet lamps,

and one unfamiliar machine from which was suspended a large metal device with short spikes like a small parasol, said to be used for treatment of sinuses, headaches, etc. Many of the chairs in the waiting room had threadbare seats, but there were excellent health education posters on the walls. There was evidence of neglect of general building maintenance.

The medical record room was a small, dark area with open shelving, where records—a single record for each patient, used by all departments—were filed alphabetically, by uchastok. Examination of a few selected records showed hand-written entries with copies of X-ray and laboratory reports. A summary of this polyclinic record accompanies the patient when he is referred to the hospital.

Sumgait, Republic of Azerbaijan

Sumgait is an even newer “new city” than Rustavi, having been built in 1955 to provide housing and all facilities for the workers in the plants of a metallurgy and chemical industry. The adult general hospital was constructed in that same year. All the medical facilities in Sumgait are operated by the rayon health department. They include:

- The general hospital for adults, with an integrated adult polyclinic.
- A separate polyclinic for workers at the steel mill.
- A maternity hospital.
- A children's hospital.
- A uchastok hospital.
- Six medical sanitary units.
- Six sanitation units.
- Three medical stations.
- Three dispensaries for cancer and tuberculosis.
- A sanitary-epidemiological unit.
- An emergency service.

Sumgait in 1965 has a population of 100,000, and a total of 950 hospital beds. A new hospital of about 480 beds is now under construction; this will bring Sumgait's total beds to about 14 per 1000 population, compared with the “normative” of 11 per 1000. The delegation was told that five or six beds per 1000 are used for periodic check-ups of workers; for example, workers who handle mercury are sent to the hospital twice a year for a four- or five-day stay. (Both the metal industry and the trade union also maintain sanatoria for workers, but these beds are not included in the hospital bed total.)

The chief physician of the rayon informed the delegation that he had 1900 health care personnel under his supervision—365 physicians, 850 paramedical personnel, and 685 others. Twenty physician positions had been added in 1964; five physicians had left and 25 had been recruited, and there were no vacancies at the time of the visit. The 250-bed adult general hospital had a staff of 350, including 66 physicians, 134 paramedical workers, 90 “juniors” or ward maids, and 50 others. This hospital had been initiated by the Ministry of Metallurgy of the Republic, which paid 30 per cent of its costs; the balance was paid for by the Ministry of Health, which now operates it.

The general hospital's beds were divided as follows: internal medicine, 100 beds; surgery and traumatology, 70 beds; urology, 10; ear-nose-throat and ophthalmology, 10; neurology, 30; and other specialties, 30. There were no psychiatric beds in Sumgait.

Seventy per cent of Sumgait population are under 35 years of age; the birth rate is accordingly high—40 per 1000, said to be one of the highest in the U.S.S.R. The death rate was described as very low and getting lower each year, but the exact figure was not given. The death rate of children under one year of age is 20 per 1000; the death rate for patients in the hospital is 0.5 to 0.7 per cent. There are a few retired workers.

The polyclinic attached to this hospital, like the hospital itself, serves 12 uchastoks, each with its own physician. There are consultant specialists in surgery, ophthalmology, communicable diseases, and other specialties. The polyclinic has the usual supporting services—electrocardiography, X-ray, and physiotherapy as well as biochemistry, bacteriology, and clinical laboratories. It also has a special office or “kabinet” for teenagers recently transferred from the children's polyclinic.

The delegation was told that there was a 50-bed general hospital in one uchastok in the rayon.

The Sumgait maternity home has 200 beds, 135 for obstetrics and 65 for gynecology. There are two obstetrical services, one gynecological service, a newborn department, and a surgical service with an operating room for obstetrics and one for gynecology. Attached to the hospital is a women's consultation service serving nine uchastoks; there is one physician (an obstetrics-gynecology specialist) and a midwife for each uchastok. In addition, there are five midwife-gynecologist “points.”

Obstetrical patients here have an average stay of nine days for normal deliveries; they begin ambulation on the fourth or fifth day. The stay in complicated cases, said to be rare, is as high as 20 days. The delegation was told that full-term babies are usually large; the premature baby was defined as being under 2500 grams in weight, or 47 centimeters in length. There were 4000 deliveries in the hospital last year, and 125 prematures were cared for in the hospital. Premature infants who do not do well are sent to a special institute for premature infants in Baku. The laboratory does Rh factor studies, but does not do phenylketonuria tests.

The women's consultation service occupies a separate building. There is a special room where expectant mothers are given “psychotherapeutic education for delivery”—training for natural childbirth. The course of training is given in four or five 30-minute sessions, to “classes” of three or four pregnant women at a time. The training is said to be so effective that most women require no anesthesia during labor; in certain cases analgesic suppositories are given.

3. ADULT GENERAL HOSPITALS

City Hospital No. 67, Moscow, R.S.F.S.R.

This hospital, built in 1959, has the appearance of a 15- or 20-year-old building that has received very poor maintenance. It is a 1500-bed hospital with about

100 admissions daily, 70 per cent of them cases of acute illness. It receives emergencies from its own and an adjacent rayon. Almost all medical specialties are covered (including obstetrics and pediatric medicine in two separate building blocks), and occupancy is usually 100 per cent in all departments. About 70 per cent of the service is in surgery; in 1964 about 1750 major operations were performed in nine operating rooms. The annual budget of the hospital was said to be 2 million rubles; the average cost per patient day, 4.5 rubles.

The first ward visited was an ear-nose-throat service of 60 beds, with an old-fashioned design layout. Most of the patient rooms held five beds, with little space between them. Some rooms had one bed and one cot. There were no rooms with toilets; no running water in the rooms; very few electrical outlets; and a simple light call system, with a signal over the door in the corridor. Doors were narrow, but reasonably adequate for moving the narrow, nonadjustable European-type patient beds. Plaster walls were freshly painted, but there was no protection against bumping and gouging. Housekeeping seemed fairly good.

Floors were parqueted with linoleum in the center; the linoleum was buckling at many points, and there were many bubbles. The parqueted floor in the elevator lobby was being completely replaced. Terrazzo flooring in the stairwells appeared to be very poorly constructed; edges of steps were chipped in many places. Elevators were old-fashioned, slow-moving, and creaky, with wooden cabs. There were a few simple hand fire extinguishers along the corridor wall at long intervals, but no hose in the occasional standpipe cabinets.

The nurses' desk and a small drug cabinet were in a day room at the center of the ward. The day room was light and airy, with white curtains, growing plants, and very simple furniture. Furniture in other day rooms in the hospital was more elaborate—upholstered chairs and lounges, tanks of tropical fish, etc. Medical records were handwritten, and were kept in a pile on the nurses' desk. Examination of the records showed a reasonable number of entries, including X-ray and laboratory reports.

Surgery was going on in the operating room suite. Here the general set-up, including lights, drums, stretchers, cabinets, and incinerator chute (in the outer room), was reminiscent of hospitals seen in Vienna in 1935—buildings constructed many years earlier than this one.

On another floor, members of the staff were engaged in the clinical investigation of gastrointestinal disease. A series of rooms were equipped for studies of peristalsis, in which radioactive pellets were swallowed by the patients.

The delegation was informed that each department had its own diagnostic X-ray room; in this hospital there were nine. One roentgenologist was chief of the entire X-ray department. The object of this decentralization was "to keep the X-ray service close to the patients." The X-ray equipment was simple, appearing to be of the vintage of the 1930s.

In response to a request to see clinical pathology laboratories, the delegation was escorted to several medium-sized rooms, in two of which members of the staff were said to be engaged in clinical research in bacteriological studies of ulcerative colitis, with treatment by vaccines, such as acidophilus.

The separate children's building, with 120 beds, was similar to the main building in general design layout, furnishings and equipment. Of special interest was the provision of rooming facilities for mothers to stay overnight.

City Hospital No. 8, Tbilisi, Georgia

This 400-bed hospital was constructed in 1963. It has services in surgery, internal medicine, neurology, otorhinolaryngology, and maxillofacial surgery. Its staff includes six professors for the instruction of medical students and of physicians taking postgraduate work; six *ordinaturs* who serve two years each; six physician-anesthesiologists; and 12 nurse-anesthetists. The remainder of the staff was not detailed. There is no polyclinic attached to the hospital.

Average length of stay in the various departments was given as follows:

Surgery	15 days
Internal medicine	17 days
E.N.T.	8 days
Neurology	19-21 days
Maxillofacial surgery	19-21 days

Though built only two years ago, this hospital had the appearance of being a much older building. The design was the same standard one seen elsewhere. Housekeeping was good and the day rooms on the wards were bright and airy, with brilliant sunshine streaming in, and many growing plants. Most of the floors were parqueted, with a center running strip of sheet linoleum. The terrazzo steps in the stairwells were poorly made and had already begun to chip badly. Hardware on the doors and elsewhere was very simple. Patient rooms had stainless steel bedsteads of the narrow European type; no Gatch beds were seen.

A small emergency room on the first floor was clean; it had a minimum of equipment, with a simple operating table and a good overhead operating room light. The maxillofacial operating room on another floor seemed to have the best equipment in the hospital, including a new dental drill.

The X-ray department was decentralized as usual. In one of the departmental diagnostic X-ray rooms, some of the equipment looked as though it dated from 1935, but another of these rooms had new modern equipment. A portable X-ray machine seen in a hallway was new and of simple construction. In each city, deep X-ray therapy is given in a separate center—in Tbilisi, at the Institute of Radiology.

Routine bacteriology laboratories were light and airy, but had limited equipment (including new monocular microscopes). The biochemistry laboratory, which had minimal equipment, was about the size of a large office and seemed very small for a 400-bed hospital in 1965.

From 10 to 30 blood transfusions per week are performed in this hospital. There is a central blood bank in another hospital in Tbilisi; blood is distributed from there by special automobile transport as needed. The delegation was told there are plenty of volunteer donors.

The hospital staff conducts regular meetings to discuss cases; there are also scientific seminars. (The delegation was told that 34 of the physicians on the staff were doing research.) The hospital has an advisory council made up of chiefs of industrial workshops, directors of factories, the director of the hospital and his first deputy, trade union representatives, etc. In response to an inquiry about the use of volunteer workers, the director said that in the springtime people

from the community come in to help with general cleanup and the planting of trees, but no volunteers are used to assist in the care of patients.

Several handwritten medical records were examined; they showed daily entries, apparently ample, with copies of X-ray and laboratory reports.

City Hospital No. 2, Baku, Azerbaijan

This 300-bed hospital, built in 1964, provides care for Caspian Sea transport workers (engineers, technicians, and seamen) and their families. The hospital budget provided by the Republic is supplemented by a separate trade union contribution for special diet, special treatment, and recreational and diversional activities (for example, radios and television sets). The trade union also provides cards for free care in convalescent homes (sanatoria) for adults and in pioneer camps for children.

The hospital appeared to be somewhat more affluent than others visited; it is better built (of porous stone blocks that are available locally) and has better equipment. It is built on the same general design as other hospitals seen by the delegation. The construction cost was 1.6 million rubles.

The hospital has two internal medicine and two surgery services, with 20 beds for gynecology, 15 for thoracic surgery, and 10 for ophthalmology. There is no tuberculosis service. Supportive services include clinical laboratories, biochemistry laboratories, both diagnostic X-ray and X-ray therapy, electrocardiography, physiotherapy (also physical culture), etc. An integrated polyclinic, with a deputy chief physician in charge, serves four uchastoks; all specialties, including communicable diseases, are represented on the staff. The delegation was told that the intention was to open more hospitals with integrated polyclinics in Azerbaijan, "in order to achieve closer relationships with uchastok physicians." The Azerbaijan Ministry of Health was said to be particularly concerned with outpatient departments, with special emphasis on the program of screening and dispensarization.

A woman physician in the group that met with the delegation was introduced as a "specialist in charge of rehabilitation and preventive medicine." The delegation was told that her department serves a wide range of professional, mechanical, and other workers. The physician who is the department head participates in committee deliberations on selective placement of workers who come under dispensarization. The committee also annually reviews "prophylactic measures," with special attention to occupational hazards, such as heat, noise, noxious chemical substances, etc. Most of the employees in this industry work six hours a day. In some hazardous shops they work only five hours, and may receive supplemental food and longer vacations.

The department of surgery in this hospital teaches physicians enrolled in the Institute for Advanced Training of Physicians, and also provides training in neurology for students in the medical school. There is no affiliation with a paramedical school.

The delegation was impressed with the better than average appearance of this hospital. The wards had a fresh look; the rooms were breezy and bright, with high ceilings. The floors were parqueted, with a strip of carpeting in the corridors. The wards were open, with no cubicle curtains; the bedsteads were again

without Gatch mechanisms. There were open-bulb call lights over ward doors. Corridor lighting was better than in hospitals seen previously. The day room was attractive, with many growing plants.

This recently constructed hospital showed evidence of an increasing recognition of the need for more space for departmental activities, even though the general layout was reminiscent of a hospital of the 1920s or '30s. The laboratory area was much larger than others that had been seen, and there were not only some new monocular microscopes but also several binocular ones. Three physicians and a considerable number of laboratory assistants were at work in the laboratory. About 100 procedures a day were said to be done. The chemistry laboratory had a small, simple fume hood, a modern centrifuge, and a small flame photometer that had just been received and was not yet in use.

The large operating room was still in the last stages of construction. It had a new surgical light and new operating tables, with multiple recessed fixtures in the ceiling for general room illumination. There were two other small operating rooms. The sterilizing rooms were very small.

City Hospital No. 2, Leningrad, R.S.F.S.R.

This 360-bed hospital, with integrated polyclinic, was constructed in 1958 to serve a new rayon in a part of the city that had been near the front lines in World War II and that is now being built up with apartment houses. The hospital and polyclinic serve a population of 66,000; this covers 27 uchastoks, each with a population of approximately 2200.

The hospital was said to be a typical rayon hospital, engaged in teaching activities for the local Institute for the Advanced Training of Physicians but not in the teaching of medical students. Physicians are trained in internal medicine (except during the summer; none were present at the time of the delegation's visit) and in traumatic surgery, in groups of 12 to 15, with a professor and a docent. The hospital has two *ordinaturs*. Paramedical students are also taught here.

The hospital's budget for 1965 was 1.1 million rubles (see chapter IV for a partial breakdown of expenditures). In 1964 the hospital had 8267 inpatient admissions; there were 1200 visits per day to the polyclinic.

In addition to uchastok physicians, the polyclinic staff includes the following specialists: neurology, 4; surgery, 4; ophthalmology, 4; ear-nose-throat, 4; endocrinology, 1; urology, 1; physiotherapy, 1; radiology, 2; cardiorheumatology, 4; oncology, 8; and physical culture, 1. Fourteen members of the 141-physician staff are men, mostly surgeons and ear-nose-throat specialists.

As elsewhere, the delegation was told that the uchastok physician works three hours in the polyclinic, where he has his office, seeing about five patients per hour. He spends three and a half hours visiting patients at home, making about six visits per day, during which he also "carries on preventive measures" and does a part of his obligatory four hours a month of health education.

Referrals from the polyclinic to the hospital may be made either by the uchastok physicians or by the specialists. A recommendation for referral is forwarded to an admitting physician in the polyclinic, who checks the case and arranges for admission. The clinic record of the patient is then sent to the ward. Two or three days later, the hospital physician attending the patient invites the patient's

uchastok physician to see the patient with him; this contact is considered beneficial to both physicians and also to the patient, who will be cared for by the uchastok physician following discharge from the hospital. When he is discharged, his record is returned to the polyclinic with recommendations for treatment and follow-up.

The hospital has six departments of 60 beds each: two for internal medicine, two for surgery, and one each for neurology and ear-nose-throat. (One surgery department is under the Academy of Medical Sciences, and cases of cancer are referred to this service.) Each of the departments has a staff of four physicians (one of whom is the chief), 14 nurses, and nine "juniors" or ward maids. The average length of stay for the hospital is 15.7 days; averages for the several departments are as follows:

Internal medicine	22.2 days
Surgery	12.1 days
Neurology	33.4 days
Ear-nose-throat	10.1 days

Mortality for the hospital in 1964 was 2.9 per cent. In the various departments it was as follows:

Internal medicine	4.25 per cent (mostly from myocardial infarction and hypertension)
Surgery	2.1 per cent (mostly malignant tumors)
Neurology	4.7 per cent (mostly cerebral hemorrhage)
Ear-nose-throat	0.26 per cent

The delegation was told there had been "no postoperative sepsis for years." In 1964, among 996 appendectomies there were six "local wound infections," and there was one among 196 hernia repairs.

Special services include physiotherapy, physical culture, functional diagnosis (electrocardiogram, ballistocardiogram, vector cardiogram, basal metabolism rate, etc.), bacteriological laboratories, pharmacy, diagnostic services, and pathologic anatomy.

When asked whether the hospital had any system for recording and collating adverse drug reactions, the chief physician told the delegation: "We do not receive new drugs here for testing. We receive only drugs that have been thoroughly tested by other institutions. We have had some adverse reactions, but we immediately stopped using the drug. We have no recording system for such reactions."

In discussing the hospital's relationship with maternity homes and pediatric hospitals, it was noted that this polyclinic has an office ("kabinet") for teen-agers recently transferred from the separate children's polyclinic where they are cared for up to age 16. Pregnant women are usually served by the women's consultation service in a maternity hospital, but those having certain complications are sent here and the findings are forwarded to the women's consultation service. The polyclinic has a gynecology department for diagnosis only, not for treatment; it is really a referral service for other polyclinic departments.

The delegation toured the hospital, which was bright with natural light. The

areas visited were freshly painted; there were attractive yellow curtains; the corridors had modern light fixtures, and patients' beds were equipped with ear-phone radio and nurse call buttons. In two patient rooms, piped oxygen was observed. All had lavatories with running water—the only patient room lavatories that were seen.

In a long corridor there were two nurses' stations, with tables for charts and other items. On the wall there was a fire-call chart, and the hose cabinet contained hose. There was a small fire alarm button adjacent to the hose cabinet.

The surgical suite included a sterilization and supply room in the middle of a busy corridor. Anesthesia is given in the operating room, rather than in an anesthesia room. In a room adjacent to the operating room there were china basins for alcohol rinse of the surgeons' arms. The operating rooms were medium-sized, with two tables and two overhead lights each; they had tile floors. There were intake louvers for ventilation from the corridor and outlet louvers on the opposite side of the rooms.

4. UCHASTOK HOSPITAL

Uchastok Hospital, Tashkent, Uzbekistan

This 75-bed hospital, which has an attached polyclinic, serves a collective farm district of about 10,000 population, including 4300 children—an area with a radius of about 10 miles. The chief physician of the oblast in which it is located (one of 10 oblasts in the Republic of Uzbekistan) said that this was an "average" uchastok hospital, adding that some others have better buildings and more consultation services. The delegation was informed that a new 120-bed hospital and four new 50-bed hospitals are being planned by this collective farm district, and that the present building is to be converted to a "prophylactorium" or night sanatorium, in which the workers, after working in the fields all day, can receive all preventive measures during the evening and night. It will also be used for convalescents who are able to return to work but require continued follow-up care.

The hospital has 15 beds for obstetrics, 20 for pediatrics, 30 for internal medicine, and 10 for surgery. It has a total staff of 111, including 12 physicians, 28 *feldschers*, and 45 other paramedical personnel. The physicians cover the specialties of gynecology, surgery, pediatrics, tuberculosis, communicable diseases, and X-ray; there is also a dentist. There are four feldscher-midwife points on the collective farms, and the 24-hour emergency service has four ambulance teams, each consisting of a feldscher and a driver; if necessary, a physician is sent with an ambulance.

The main goal of the polyclinic is prophylaxis; the total district population is screened twice a year. Patients with positive findings of tuberculosis, cancer, worms, etc., may be followed by dispensarization; or they may be referred for care as inpatients in the uchastok hospital, or as sanatorium patients; or they may be sent to the rayon hospital about seven and a half miles away, or to the oblast hospital 10 miles away; or a consultant may be called in from the rayon hospital. A consultant visits the hospital regularly once a month and a docent also comes

about once a month, or when called, "as a volunteer." About a dozen medical students work in the hospital during summer vacation.

In response to a question, the delegation learned that abdominal surgery, cesarean sections, and other general surgery are performed in this hospital, but no chest surgery, cardiovascular surgery, or neurosurgery is done. One or two cases per month have to be referred to the rayon hospital.

The delegation toured the hospital and found it old, dilapidated, and crowded. The maternity section, which had a separate entrance, looked "like 1900"; the beds were crowded together in very small rooms. The newborn nursery had about 18 swaddled infants in cribs that were right against each other. A midwife is in charge of the maternity section; the delegation was told that the midwife is allowed to deliver primiparae, and to use low forceps and do breech deliveries. "No sepsis, no breast abscesses" were reported. Two transfusions had been given within the last few days before the visit.

In the hospital's pediatric ward the mothers were allowed to sleep with their sick babies, and at the far end of one adult ward three acutely ill male patients were also being attended by members of the family, including a young boy with a fly swatter and an old woman with a fan.

In the course of the conversation the delegation was told that all collective farms have facilities, including rest homes, for chronically ill patients. About one-half million people in Uzbekistan receive pensions, including "some collective farm pensions." The Ministry of Welfare maintains sanatoria for disabled patients; this oblast has one with 300 beds for adults and another for children. The Ministry of Health assigns physicians to these institutions, but is reimbursed for this by the Ministry of Welfare.

It was noted that patients with terminal cancer are hospitalized, and that about 90 per cent of deaths from all causes occur in hospitals.

The director of this hospital has a deputy for administration, an assistant (a midwife) in charge of the maternity department, and another assistant in charge of "food, etc." There are four feldscher-midwife points, with consultation services available. The feldschers carry on preventive measures and health education, supervise kindergarten and crèches, and handle emergencies, and they can dispense certain drugs. The delegation was told that a feldscher can recommend a narcotic drug, but must get the chief physician's approval before it can be dispensed. The chief nurse is in charge of all drugs, including narcotics. The state pays two or three kopecks (about 3 cents) for drugs for each polyclinic visit; outpatients pay the balance of the cost. Inpatients receive all medication free.

5. INDUSTRIAL MEDICAL CENTER

Medical Center Unit of Textile Combine, Tashkent, Uzbekistan

The delegation visited the medical center of a textile combine in Tashkent, which consists of eight factories producing cotton textiles (two do weaving; three, spinning; one, knitting; one prints designs on fabric; and one is a mechanical workshop for machinery). The center consists of about a dozen buildings in a

park-like setting, with a small stream that provides irrigation; there is outdoor music. The complex includes dining rooms, barber shop, swimming pool, etc. It serves six uchastoks with 18,000 workers, who work two shifts of eight hours daily and get two days off per week. (Most other industrial workers work seven-hour shifts and get one day a week off.)

The medical center has a total staff of about 900, including 162 physicians and 430 paramedical workers. There are three stages of health care in the center: first, health units attached to the several factories and staffed by feldschers and midwives; second, a polyclinic; and third, the adult general hospital.

At the factory health units, all workers and their families are examined annually by teams of specialists, comprising an internist, a surgeon, an otorhinolaryngologist, a dermatologist, a dentist, a gynecologist, a phthisiologist, and a neurologist. The delegation visited one such health unit, and found a feldscher and a midwife in the office, which had a cabinet display of contraceptive devices and literature for the instruction of patients. The delegation was told that birth control pills are not used here, and in fact are used in only two of the Republics in the U.S.S.R.

This health unit also included a physiotherapy machine, which was supposed to reproduce the seashore climate and to have a good effect on the workers. It consisted of a larger central porcelain basin with a small spray of water striking a copper plate, which "provides positive and negative ions by vaporization of the water." These ions were said to "have influence on the human organism." Patients are exposed to the beneficent vapors by sitting in large chairs around the central basin and napping for 30 minutes.

In this health unit, first aid is provided to workers by the feldscher, who refers patients to physicians at the polyclinic when necessary. In addition, the feldscher is concerned with sanitary-epidemiologic matters—air pollution, plant safety, and sanitation of food service—and carry out immunizations and vaccinations.

The second stage of the health program is the polyclinic or outpatient department. It is open from 9 a.m. to 8 p.m., with two shifts of physicians who work five and a half hours each; during the night hours, physicians are on duty and an ambulance and cars are available. Thus, service is provided around the clock, every day of the week.

The polyclinic building contains 86 rooms. Among its departments are consultation services for women and children; a dental department, in which the staff includes stomatologists and where prostheses are made; and a physiotherapy department, with hydrotherapy, electrotherapy, and heliotherapy. There are biochemistry, histology, and bacteriology laboratories, and also a laboratory concerned with problems of nutrition.

Outpatients in the polyclinic must purchase, in special pharmacy shops, drugs prescribed for use at home, except in certain diseases, such as tuberculosis, for which medications are provided free. There are no standard formularies, the delegation was told, because there is no need for them. Eyeglasses are furnished at a cost to the patient of approximately 0.7 ruble (70 kopecks, or about 77 cents). Dental prostheses are paid for by the patients, unless they are "invalids of war" or persons unable to work; in such cases the payments are made by the Minister of Welfare.

The third stage of the health program is represented by the 425-bed general hospital, which—together with a 55-bed maternity hospital and a 115-bed children's hospital, both located in a housing project for workers about two miles away—is utilized for teaching by the Tashkent medical school. Professors and docents from the medical school teach students in the hospital and also supervise the medical care given to patients. The professors, representing the chairs of internal medicine, surgery, pediatrics, and gynecology, spend most of their time in the hospital, and participate in monthly meetings of the hospital medical staff. They go to the medical school only to give lectures. Other professors are available for consultation in neurology, radiology, and pathology.

Four hundred fifty students in the third, fourth, and fifth years of medical school are taught in the hospital. For each of the professional chairs there are also two or three *ordinaturs*.

Touring the hospital, the delegation was interested in the provision of special diets for inpatients, prescribed by a physician whose specialty was translated as "dietologist." Diets for cardiovascular diseases, digestive diseases, kidney diseases, etc., designated "Special Diet No. 1," "Specal Diet No. 2," and so on, are served at different tables in the patient dining areas, where patients for whom these diets have been prescribed are required to sit. In the polyclinic, the uchastok physician prescribes special diets as required for use at home.

This medical center is financed by the Republic Ministry of Health, except that the textile combine, which paid for construction of the buildings, also pays for their maintenance.

6. CHILDREN'S HOSPITALS

Children's Hospital, Baku, Azerbaijan

This 450-bed hospital had a census of 300 at the time of the delegation's visit. It was perhaps the most attractive and best-maintained institution that was seen, and the delegation learned that it had been the first institution in the Republic of Azerbaijan to receive the Ministry of Trade's Red Banner as the "best establishment." The banner was displayed in an attractive day room, and the entire staff was proud of the award and obviously intended to keep the institution worthy of it.

The hospital specializes in maxillofacial plastic surgery; it was said to be the center for this specialty in Azerbaijan. The operating room had a marble floor, modern operating table, modern anesthesia machines, and excellent fixed and portable operating room lights, and the instrument cabinet contained a wide variety of modern surgical instruments. A display of "before and after" photographs of young patients with congenital defects (cleft palate, harelip, etc.) showed splendid cosmetic results.

The hospital is used in the teaching of both medical students and physicians from the Azerbaijan Institute for the Advanced Training of Physicians. There are seven professorial chairs, six for the medical school at Baku and one for the advanced institute. The staff of 700 includes 50 professors, *docents*, *ordinaturs*, and laboratory people, as well as 89 staff physicians, 260 paramedical workers, and about 300 others.

The reason for the low patient census was the summer season; the delegation was told that no tonsillectomies are done during the summer, and that parents do not like to send their children in for any type of elective surgery during the hot months. The teaching staff is on vacation from July 1 to September 1.

The hospital was built in 1960. It is clean, light, airy, and has a bright appearance. The buildings are screened throughout. They are constructed with an outer facing of small, square blocks of porous stone over concrete.

On its tour of the hospital the delegation saw a number of attractive day rooms and play rooms for children, with many growing plants. One of these rooms had walls covered with excellent murals illustrating Russian fairy tales. In another there were small painted and decorated tables, attractive rugs on the floor, and a radio. Pictures of Lenin playing with children were prominent in some of the play rooms. One unusual room contained several large modern perambulators in which infants were being wheeled back and forth.

The corridors of the hospital were floored with wood, with a plastic strip running down the center. At regular intervals there were small fire standpipes, but no hose. Crib bedsteads were of stainless steel. The delegation noted colored dial telephones.

The laboratory was fairly well equipped, including chromatography equipment. The delegation was told that 17-ketosteroid determinations were done. In another, rather old-fashioned laboratory, workers were engaged in studies of vitamin metabolism. Pathology and bacteriology laboratories were said to be in separate buildings, as was the kitchen.

The hospital is integrated with a polyclinic, which serves a population of 20,000 children from infancy to 16 years. The delegation was told that an effort is made to have the same physician who makes home visits see the children in the polyclinic. The emphasis is on prophylactic work and controlled follow-up, with frequent specialist consultation.

Children's Tuberculosis Sanatorium, Tashkent, Uzbekistan

This institution is the bone tuberculosis sanatorium for the Republic of Uzbekistan, and is under the Ministry of Health. There are other tuberculosis hospitals and preventoria in the Republic. This one cares for 325 children and has about 30 new admissions per year. The average length of stay for spondylitis has decreased, in the last five years, from two and a half or three years to only about one year. The story is said to be the same for other forms of bone tuberculosis, and the authorities hope it may be eradicated in a few more years, and that this hospital may be converted to a children's sanatorium for cardiovascular diseases (especially rheumatic fever).

The hospital has a good surgical service, and the staff is convinced that surgery yields excellent results, reducing the length of stay to one-third or one-half of what it would be with conservative methods. All the surgery is elective, and the decision to operate requires the approval of a staff council. There are virtually no deaths. The full treatment consists of a "sanitary regimen," antibacterial chemotherapy, surgery, and heliotherapy. The delegation was told that 80 per cent of the children are discharged without joint deformity.

A follow-up service is also provided. The discharged patients return during

school vacation for a stay of about two months, during which a check-up is done; few recurrences are found. Screening examinations of other children in the Republic are also done, with the objective of early detection and treatment.

Cases are referred to this hospital from other children's tuberculosis sanatoria in the rayon and oblast. The admitting and diagnostic department does a check-up on referrals, and occasionally finds tumor, compressed fracture, or some condition other than bone tuberculosis.

The staff stated its disagreement with the American theory that bone tuberculosis in children is due only to infection with the bovine tubercle bacillus. They are convinced it is caused by the human tubercle bacillus.

The staff numbers 350, including 27 physicians (all said to be doing research as well as clinical work), and 105 paramedical workers (46 of them teachers for the children's classes). The others are "juniors," ward maids, etc. A professor and a docent serve as consultants. Two Candidates in Medical Science on the staff are the chiefs of radiology and of surgery, both of whom are men. Four other surgeons and the majority of department chiefs are women. Although this is not a teaching institution, there is a continuous teaching program for the staff.

The institution is situated on a hill outside Tashkent, about 325 feet above sea level and much cooler than the city. The grounds cover about 45 acres, and include the hospital's own orchard and farm. A 10-grade school is operated for the children, with individual instruction. (The delegation was told, "They all want to become physicians!") In addition to the usual subjects the children are taught music, drawing, photography, and sewing. Families of patients are given liberal visiting privileges.

The delegation's visit was on a warm summer day, and the children were in bed in the open air, on several one-story verandas. They gave an enthusiastic reception to their American visitors, and sang Russian and Uzbek songs accompanied by an accordionist and led by a lively middle-aged nurse. The whole institution had a fine *esprit de corps*, and seemed to be a happy place, complete with a peacock preening himself in a shiny automobile hubcap.

7. TUBERCULOSIS HOSPITAL

City Tuberculosis Hospital No. 2, Leningrad, R.S.F.S.R.

This 500-bed hospital with integrated polyclinic is operated by the city health department. It is made up of 15 buildings: four ward buildings, one for administration, one for the polyclinic, and nine auxiliary buildings. All were built in 1960. All medical students taking the course in tuberculosis at the Military Medical Academy in Leningrad are taught in this hospital by their own instructors, and postgraduate teaching of physicians from the Institute for the Advanced Training of Physicians is also done here. Physicians who come for advanced training serve as staff members, under supervision; there were also two *ordinaturs*, one in tuberculosis and one in urology.

The hospital's 500 beds, all occupied during the delegation's visit, include 100 for surgery and 60 for urology (the latter being not only for cases of tuberculosis

but also for other urological conditions, such as cancer, calculi, etc.) ; the remainder are for pulmonary tuberculosis patients. The cost per patient day, including medical care, medication, and food, is six rubles. The annual budget for the hospital and polyclinic combined is 1,275,000 rubles.

The polyclinic serves the "healthy" (i.e., nontuberculous) population of a so-called microrayon of 40,000 population. This was said to be an unusual arrangement. The hospital and polyclinic together have a staff of 101 physicians. The in-patient department has 49 physicians, 130 nurses, 130 "juniors" or ward maids, and 75 auxiliary workers. There are 20 uchastok physicians (one physician per 2000 population) with offices in the polyclinic ; the other 32 physicians on the polyclinic staff represent various specialties.

As for the treatment of pulmonary tuberculosis, the delegation was told that pneumothorax is being used less and less in this hospital, but pleural decortication, pleuropulmonary resection, and other types of resection are still done. Of the 500 operations performed annually, approximately 200 are resections. In general, the treatment consists of a combination of isoniazid, antibiotics, surgery, and sanatorium therapy. The hospital has clinical, biochemistry, and bacteriology laboratories ; there is no experimental laboratory here, but the Military Medical Academy has one.

The delegation toured one of the tuberculosis ward buildings. In one of two small operating rooms, surgery was under way. The room had good lighting ; the cautery was attached to an ancient electric wall panel. Anesthetic gases were being given from a large commercial-type tank next to the table, and the patient was receiving an intravenous solution from a very small bottle. The operating surgeons around the table wore caps and masks, yet were dressed in street clothes, with street shoes, under their white gowns. The operating room nurse supervisor showed the delegation a hand-stapling machine that was used for bronchial sutures.

In a postoperative recovery room there were three beds and one pulmonary ventilation apparatus. The only Gatch mechanism seen on the tour was in a post-operative room in this hospital ; it was on a white enamel bedstead. Other beds seen here had stainless steel frames, but no Gatch mechanism. One ward contained seven beds, all equipped with radio earphones.

Another building toured had beds for 30 male and 30 female urology patients, and had its own X-ray department and operating room. One hundred to 150 surgical operations a year are done here, but the delegation was told : "We prefer conservative measures to surgery in this specialty." A nephrectomy was being done in a small operating room where the lighting was good and the equipment was old-fashioned. There was one ultraviolet light on the side wall, facing upward. One nursing unit had some two-bed rooms.

Some old fire hose was seen, loosely piled in one fire hose cabinet.

8. POLYCLINICS

City Polyclinic No. 3, Baku, Azerbaijan

This was a large polyclinic covering 23 urban uchastoks with a total population of 55,000. The delegation was told that in the same rayon there are three

other adult polyclinics, five adult general hospitals, and three maternity hospitals, serving 240,000 persons.

The first building on the polyclinic site was constructed more than 150 years ago; it has been replaced or reconstructed many times since. The present building has three stories, and there is now under construction an additional three-story building that will enable the polyclinic to initiate new services. Registration, the hydrotherapy department, and storage for equipment and supplies are on the first floor of the existing building; diagnostic and treatment rooms and physicians' offices are on the upper floors.

The staff includes a physician and a nurse for each of the 23 uchastoks, and two specialist teams, each with its own chief and each including specialists in internal medicine, surgery, neurology, gynecology, dermatology, ophthalmology, oncology, ear-nose-throat, and dentistry. The clinic is open seven days a week, from 8 a.m. to 7 p.m., with two shifts of staff. From 7 p.m. to 8 a.m. a physician and certain other staff members are on duty, with cars available.

Both specialists and uchastok physicians provide home care as well as polyclinic services; any patient may ask for a specialist to visit him. Children with somatic diseases are visited at home by a pediatrician; in general, only healthy children come to the clinic, inasmuch as the staff "doesn't like contacts between sick and healthy children." There are approximately 1.5 physicians to the 2000 persons in each uchastok—about 1200 adults and 800 children. The goal was understood to be at least 26 physicians (exclusive of specialists) per 10,000, with 32 per 10,000 in rural areas. (The delegation noted that translation was quite shaky on this point.)

In touring the building, the group found the main waiting room, on the second floor, was a large open hall, with benches for patients on both sides; consultation and treatment rooms were on both sides of the waiting area. Physical therapy included electrotherapy, heliotherapy, and diathermy; hydrotherapy was on the floor below. There were separate rooms for "clean" minor surgery and for surgical dressings; another room was for "procedures," including injections and treatments, and this was used for emergencies at night. The X-ray room had one tilt table and one fluorographic unit, with miniature film; the staff included four radiologists. There was a well-equipped dental department, with three chairs in one room and one chair in another, very good dental lights, and new equipment (no high-speed dental drills were observed).

The hydrotherapy department included a tank for two or four extremities. The delegation was given an account of a radioactive naphthene, said to be found only in one oil well near Baku. Some remarkable claims were made for its therapeutic potency. One female patient had the naphthene material spread on her abdomen and was lying under an infrared light as treatment for "a gynecological inflammatory process."

A series of consulting rooms were on the third floor. Many of these rooms had three tables, each with a patient being examined by a specialist. Privacy is apparently not considered essential. There was also a conference hall for meetings, lectures, and health education talks. In one room, blood transfusions were given to ambulatory patients, and the delegation was told: "We also do transfusions at home, for 'stimulation,' Rh factor in pregnancy, trophic ulcer cancer, anemia, etc. We give the amount indicated, often in divided doses of 100 or 200 grams."

In the general discussion during this visit, at which several officials were present, the delegation was informed that integration of polyclinics with hospitals is favored, but that some separate polyclinics are considered necessary to serve outlying suburban and rural areas. This one now has 1400 to 1500 visits per day; the new facilities under construction will handle 850 per shift or about 1700 per day.

Each uchastok has a citizens' advisory committee of 30 to 40, which is concerned with sanitation and environmental health.

Polyclinic No. 18, Tashkent, Uzbekistan

This polyclinic is located in a new rayon of about 10,000 population, in an area where many new apartment houses for workers have been constructed. It opened in November 1964, on the 40th anniversary of the establishment of the Republic. A staff of 340, including 88 physicians and 25 dentists, serves 35,000 adults and 15,000 children. From 1500 to 2000 visits are made daily; this includes about 200 daily visits by uchastok physicians to patients' homes. The polyclinic is open seven days a week, from 8 a.m. to 8 p.m., with coverage during the night.

The polyclinic has 16 uchastok departments for adults and 17 for children; each of the adult departments serves 2000 persons, and each of the departments for children has about 900 child patients registered. One surgeon serves seven uchastok departments. Three professors serve as consultants, once a week, in oncology, internal medicine, and pediatrics; they also help the uchastok physicians to improve their skills. The polyclinic physicians also have a regular exchange arrangement with the physician on the inpatient services of two hospitals; and they were said to be taking courses in the Institute for Advanced Training of Physicians. The consultant professors participate in regular staff conferences to discuss diagnostic errors, as discovered clinically and by postmortem examination.

The new polyclinic building looked at least 10 years old to the delegation. The X-ray room had new equipment, including one tilt-table; it had lead-lined walls and ceilings, which were said to be checked every three months. The "routine laboratory" consisted of two rooms, both very small; the delegation was told that there were two more rooms for the same functions. Their equipment was new and simple. The physiotherapy room was small, with machines for five or six modalities. The electrocardiography room had a machine with a combination of 13 leads; about 10 cases a day were said to be handled here. There were "dirty" and "clean" traumatic rooms; in the latter a patient was receiving a small bottle of plasma intravenously.

The separate pediatric department had its own entrance. Considerable effort had obviously gone into making the pediatric waiting room as attractive as possible, with growing plants and colorful health education posters. When a newborn goes home from the hospital, the polyclinic is notified of his discharge, and a uchastok physician is required to visit him at home within three days; thereafter he is registered at the polyclinic. All children of school age are screened twice a year: preschool children, every three months.

appendix B

Individuals Met by the Delegation

In Moscow:

Dr. Safonov	Deputy Minister for Curative and Preventive Medicine, U.S.S.R. Ministry of Health
Dr. Orlov	Special Assistant for Foreign Visitors, U.S.S.R. Ministry of Health
Dr. Golovteev	Chief, Department of Planning and Finance, U.S.S.R. Ministry of Health
Dr. Popov	Deputy Chief, Department of Planning and Finance, U.S.S.R. Ministry of Health
Professor Kalyu	Director, Institute for Public Health Organization
Dr. Sheshova	Chief, Department of Staff Personnel and Medical Education, U.S.S.R. Ministry of Health
Professor Vishnevsky	Director, Institute for Cardiac and Thoracic Surgery
Professor Charnas	Deputy Director, Institute for Cardiac and Thoracic Surgery
Dr. Petropolskaya	Deputy Chief Physician, Moscow City Hospital No. 67
Professor Chacklin	Deputy Director, Institute of Experimental and Clinical Oncology
Dr. Volkova	Chief, Department of Paramedical Education, U.S.S.R. Ministry of Health

In Tbilisi, Georgia:

Dr. Chacheany	Deputy Minister of Health, Republic of Georgia
Dr. Chalakanedze	Chief Physician, Tbilisi City Hospital No. 8
Dr. Arveladze	Deputy Chief Physician, Tbilisi City Hospital No. 8
Dr. Gvantseladze	Chief Physician, Tbilisi Maternity Hospital No. 4
Professor Bakradze	Professor of Obstetrics, Tbilisi Medical School
Dr. Galantiya	Chief Physician, Rustavi City Hospital
Dr. Zaleshvly	Chief, Rustavi Blood Bank
Dr. Tartarashvly	Chief Physician, Rustavi Polyclinic
Dr. Sarvedes	Deputy Chief Physician, Rustavi Polyclinic
Dr. Cheekovany	Deputy Chief Physician, Georgia Central Hospital

At Tashkent, Uzbekistan:

Dr. Magzumov	Minister of Health, Republic of Uzbekistan
Dr. Andzamchodzhaev	Director, Uzbekistan Institute of Public Health Organization
Dr. Nureetdeenov	Chief Pediatrician, Uzbekistan Ministry of Health
Dr. Kamalov	Chief Physician, Medical Center Unit of Textile Combine, Tashkent
Dr. Machmodova	Chief Physician, Uchastok Hospital, Tashkent
Dr. Rachimov	Chief Rayon Physician, Tashkent

Dr. Kibrayska Chief Oblast Physician, Tashkent
Dr. Yusupova Chief Physician, Children's Tuberculosis Sanatorium, Tashkent
Dr. Mudareesov Chief Physician, City Polyclinic No. 18, Tashkent
Dr. Alimov Chief Physician, City Emergency Hospital, Tashkent
Professor Mominov Director, Institute for Curatology and Balneology

In Azerbaijan:

Dr. Mamedov Deputy Minister of Health, Republic of Azerbaijan
Dr. Effendiev Chief Physician, Caspian Sea Transport Workers Hospital, Baku
Dr. Taerova Chief Physician, Children's Hospital, Baku
Dr. Assadova Chief Physician, City Polyclinic No. 3, Baku
Dr. Gooseyenzade Chief Physician of Rayon, Baku
Dr. Eebrazeemov Chief Physician of Rayon, Sumgait
Dr. Faradzev Chief Physician, Sumgait City Hospital
Dr. Kashimova Chief Physician, Sumgait Maternity Hospital
Dr. Abulazade Chief Physician, Medical Center Unit of Tube and Pipe Factory, Sumgait

In Leningrad:

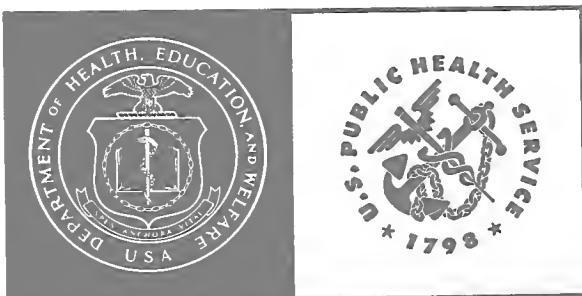
Dr. Lukin Chief Physician, Leningrad City Hospital No. 2
Dr. Steekuzevich Deputy Chief Physician, Leningrad Central Emergency Station
Dr. Boyenko Chief Physician, Leningrad Tuberculosis Hospital No. 2
Professor Vinstein Deputy Director, Institute of Traumatology and Orthopedics
Dr. Nowitsky Assistant to Deputy Director, Institute of Traumatology and Orthopedics

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